

JULY 27, 1953

7  
p

# STEEL

THE WEEKLY MAGAZINE OF METALWORKING



## Cold Extrusion

Breaks Out of Its Military Cocoon  
—see page 78

- ✓ DEPRECIATION REFORM  
*What Industry Wants, p. 35*
- ✓ WAGE INCENTIVES  
*For Supervisors, Too, p. 46*

# Which Carburizing Grade of Tubing Is Best for You?

**...B&W Can Supply Them All**

When you want to carburize for hard surface and at the same time maintain a tough core, it is wise to examine all available carburizing grades to determine which is most suitable for your specific operation. The low-carbon alloy steels listed are typical of those designed for ease of carburization.

After carburizing, the steel has a high carbon content on the surface and only the carbon content of the base alloy in the core. This provides, after suitable heat treatment, a surface which is hard and wear resistant and a core that is tough and ductile—a combination desired in many applications. Alloying elements impart an ability to develop a deeper case for a given set of carburizing conditions and provide a more gradual transition in microstructure and hardness from case to core than in a plain carbon steel.

In the application of these low-carbon alloy steels it is possible, in many instances, to use alternate grades without loss of desirable mechanical properties. Discuss your requirements with Mr. Tubes—your nearby B&W Tube Representative. You'll find B&W Bulletin TDC-149 helpful, too. Write for it.

## TYPICAL GRADES

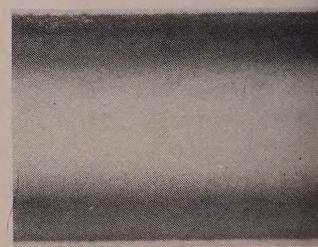
1320  
2317  
2515  
3120  
**E3310**  
4023  
4320  
4620  
4815  
5120  
6120  
8620  
8720  
**E9310**



Micro at 1000X of the case



Micro at 1000X of the core



Macro of the tube wall at 5X

**THE BABCOCK & WILCOX COMPANY**  
TUBULAR PRODUCTS DIVISION

Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing  
Alliance, Ohio—Welded Carbon Steel Tubing



# Facts about some very strong gear blanks

Bethlehem makes gear blanks by a special process involving both forging and rolling—a process resulting in uniform density of metal and excellent grain flow. Because of the firm, solid steel all the way through, the blanks machine dependably and easily, with no hidden trouble down beneath. And they



are strong—*very* strong and tough from rim to rim.

They are made in the only mill of its kind in the world. Available heat-treated or untreated, these sturdy Bethlehem blanks are unsurpassed for spur, bevel, miter, herringbone, and other types of gears. And you can get them in a wide range of sizes—approximately 10 to 42 in. OD.

Care for more details? We'll gladly furnish all you want . . . to-

gether with helpful Booklet 216, which is yours for the asking.

**BETHLEHEM STEEL COMPANY**  
**BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation



## **BETHLEHEM ROLLED-and-FORGED CIRCULAR PRODUCTS**

# "Cut costs with Buckeye Conduit--

## it bends so uniformly!"



MIDWEST CONTRACTOR TALKS ABOUT CONDUIT: "When I pay good money for workers, I want the utmost in production. That's why I use Youngstown "Buckeye" conduit. My men bend and install "Buckeye" in short order without wasting precious time."

ELECTRICAL WHOLESALER DESCRIBES BUCKEYE CONDUIT: "My customers tell me that bending "Buckeye" evenly takes a minimum of time and effort. This enables them to cut down on overtime work. As far as I'm concerned, I recommend "Buckeye" highly."



Youngstown makes rigid steel conduit from start to finish. This enables Youngstown to control the complete manufacturing process which insures that each length of "Buckeye" Conduit is made of topgrade steel. Since only high quality steel makes for easy bending, it's no wonder Youngstown "Buckeye" conduit is favored by electrical men.

Shipments of "Buckeye" rigid steel conduit are now being made from our conduit mills at Indiana Harbor and Youngstown.



### THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices — Youngstown 1, Ohio

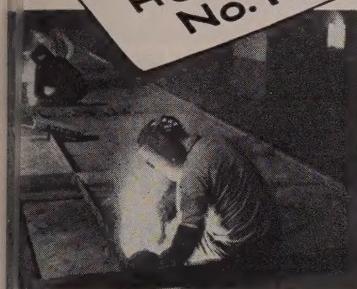
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Export Office - 500 Fifth Avenue, New York

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A new, easy to  
use E-6010 type  
electrode

HOBART  
No. 10



### Welds... and faster

down to the stub, a Hobart "10" electrode is chuck full of welding ease and efficiency. An all-position DC electrode, it has a stable, deeply penetrating arc — deposits a smooth, bead of high tensile strength and quality — assures non-porous welds quickly, easy slag removal.

Virtually an all-purpose rod, the part "10" is widely used in the welding of high pressure and mild piping, pipe lines, structural steel, bell casings, boilers, storage tanks, unfired pressure vessels, machinery of all kinds, truck frames, bridges and piers, freight cars, sheet iron fabrications, etc. Especially well adapted for work where no stresses are involved—or where weld must be susceptible to flanging or cold bending and forging—the "10" is also used for the welding of low alloy, high tensile steels where the thickness of section is  $\frac{1}{4}$ " and up.

### better with Hobart electrodes

"10" is just another example of Hobart Electrode designed to give better, faster welds at lower cost. In a complete range of types and sizes, there's a Hobart Electrode that's just right for you — whatever your work may be.

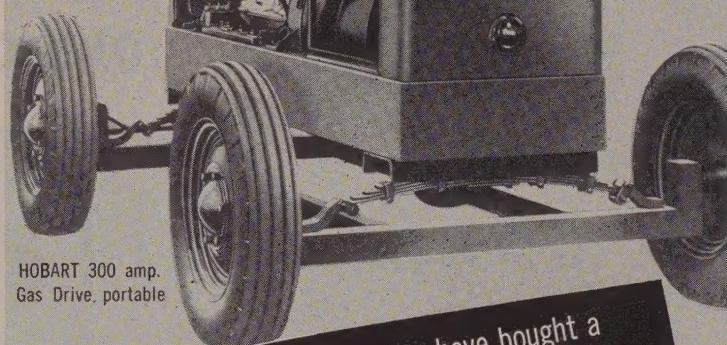


Simply tell us about your work... We'll recommend the electrode best suited to your needs—and will send you FREE samples to try on your next job. Fill out and mail coupon today!



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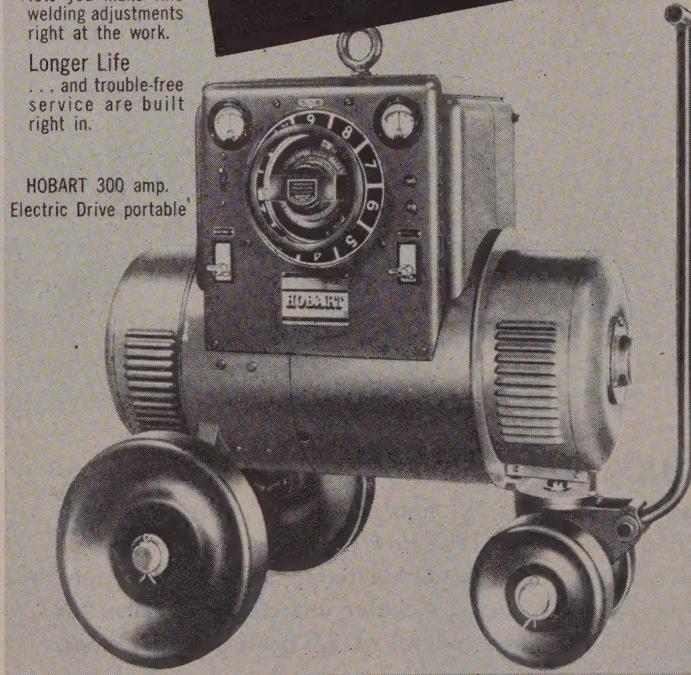
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1000 Combinations of welding heat at your fingertips.

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 Pipeliner Welder       Bantam Champ Welder  
Send me— Electrode Catalog       Accessories Catalog       Electrode Samples

Our work is \_\_\_\_\_

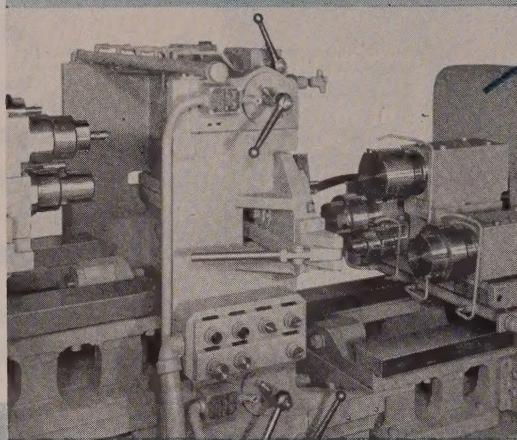
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HOBART BROTHERS COMPANY, BOX ST-73, TROY, OHIO • "ONE OF THE WORLD'S LARGEST BUILDERS OF ARC WELDERS"

Individual spindles are used for each bore to insure accuracy of location.

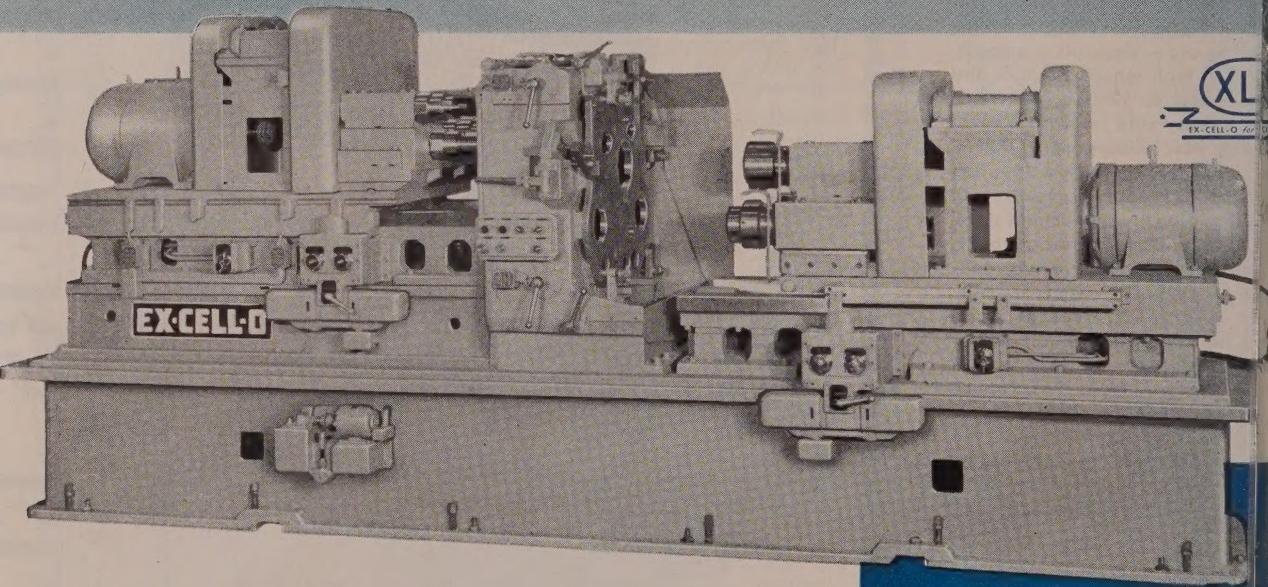


Another example of

# 27 PRECISION OPERATIONS ON 9 HOLES IN ONE CYCLE

## EX-CELL-O

PRECISION  
ENGINEERING



**SITUATION:** The part is a magnesium center plate for a gear box. It's 27 $\frac{1}{2}$ " high and 30 $\frac{1}{2}$ " wide, has holes varying in size from 1 $\frac{1}{8}$ " to 6 $\frac{5}{16}$ ". Operations are semi-finishing, finish-boring and chamfering 8 holes, and finish-boring, plunge-facing a shoulder and chamfering the 9th hole, which is blind—a total of 27 precision operations.

**SOLUTION:** The use of this special precision boring machine makes it possible to complete all operations in one cycle, and to hold the required limits. The total tolerance on each of 9 bore diameters is .001", and the location of the bores are held within plus or minus .001".

For suggestions on your precision machining problems, call your Ex-Cell-O representative or contact Ex-Cell-O in Detroit.

Special Ex-Cell-O  
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**This Week in  
Metalworking**

# STEEL

Vol. 133 No. 4

July 27, 1953

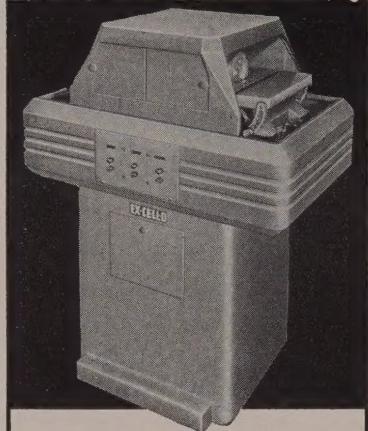
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Editorial, Business Staffs—16. Advertising Index—154. Editorial Index available semi-annually. STEEL also is indexed by Engineering Index Inc., 29 West 39th St., New York 18.



## This Sturdy Precision Tool Grinder

**STYLE 44-A**, is the newest in a complete line made by Ex-Cell-O for sharpening carbides, high speed steels, and cast alloys. All are double end models, equipped for face grinding on cup type wheels; for efficient and economical conditioning of single-point tools.

**BULLETIN 46262**, pictured below, shows and describes models for large plants or small shops; also gives important data on tool grinding. Ask Ex-Cell-O to send you a free copy. Write for it today.



For Better Work and Longer Life—

## TOOL GRINDERS

BY

**EX-CELL-O  
CORPORATION**

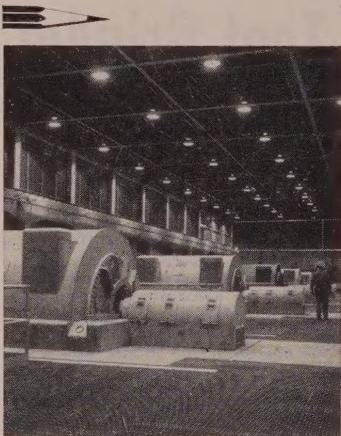
Detroit 32, Michigan

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# what's NEW

## in Engineering

The "swing and spill" hazard in conventional hook and crane hoisting may soon be a thing of the past, according to a mid-western laboratory. It has developed a new crane which substitutes an automatic mechanism, controlled by a small knob, for the usual operator's controls. The result is a smoother, controlled hoist. So new, this crane is still in scale model stage.



A power plant large enough to serve a city the size of Akron, Ohio, is just part of the nation's largest aluminum reduction plant designed and built by Kaiser Engineers. Installed capacity of the combined gas engine and steam generating facilities is 473,200 kw of power. A maximum of 140,000,000 cubic feet of natural gas is consumed per day. Speed was essential, so Kaiser Engineers had the plant producing power only eight months after ground-breaking. We'll send you an illustrated folder on request.



Instrument  
Engineering  
is a valuable new  
book by Draper,  
McKay and Lees.

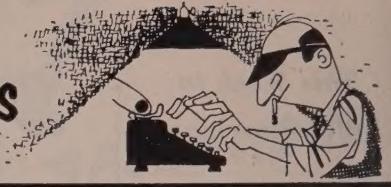
In two volumes (the second out this June), it is a comprehensive reference book for the practicing engineer—and an outstanding contribution to the theory of instrument engineering.



Incidentally, Kaiser Engineers has approximately 600 professional engineers, technical experts and staff ready to tackle your problem in design, engineering or construction. Call or write: Kaiser Engineers Division of Henry J. Kaiser Company, Kaiser Building, Oakland 12, California.

Advertisement

## behind the scenes



### May We Let Our Mind Wander?

Today we feel like the street cleaner who got himself fired because he couldn't keep his mind in the gutter. Just can't seem to get ourselves cranked up over the stack of high priority projects sitting atop the orange crate . . .

Work . . . work . . . work! That's the stuff that when we have it, we wish we didn't; when we don't have it, we wish we did, and the primary object of which is to be able to afford not to . . .

Sure would like to take ourselves off to a summer resort or some other pleasant strutting-ground where nobody knows how unimportant you really are at home . . .

Can almost feel the soft give of a putting green under our feet right now. Wonderful game that golf. Read the other day where high-speed camera research has proved that a golf ball leaves the tee at the speed of 135 miles per hour at impact. That's just a might slower than Shrdlu leaves the office when we've got a hot match on . . .

Swimmin's what we really feel like today.

Love to dip our size eights into the cool water of a tear-drop-shaped pool with a stack of love letters (the STEEL reader variety) clutched in our fist and scan your many thank you's for such publishing extras as the Specifications Handbook . . . the Stainless Steel Buyers' Guide . . . the Program for Management series . . .

In this "cool" frame of mind, we might even project our thinking to the fine editorial jobs on tap for the next five months, things like the Machine Tool Buyers' Guide . . . the Metal Show Special Issue . . . five more installments in the Program for Management series, etc.

Publishing sure beats working when readers are as complimentary as you folks have been. Thanks!

### The Winnah! !

All the way from Montreal, Canada comes the solution to our puzzler of July 6. Mr. M. S. Bailey of the

Machine Products Corp. sent us the following wire:

DEAR SHRDLU:

COULD NOT COMMUNICATE SOONER BECAUSE THIS ISSUE UNOPENED UNTIL YESTERDAY EVENING—STOP—WAS AGREEABLY-SURPRISED TO FIND TYPE PUZZLE I LIKE FOR A CHANGE — STOP — PLEASE LET US HAVE MORE LIKE IT EVEN IF FOLLOWING DIMENSIONS ARE NOT CORRECT—390 BY 240 BY 260 INCHES.

Congratulations, Mr. Bailey! We're tremendously impressed. We had the problem pretty well licked ourselves until Mama Spider saw Papa Spider making tracks for the Black Widow next door . . . distracted us just enough to throw our calculations off .000001-inch on the length of the room.

### Now Try This One

Here is a problem in logic. It's done without numbers. We call it the problem of the three philosophers.

Three of the profs were whooping it up on the campus one P.M. Come to think of it, it was P. M. they were whooping it up with.

They had just made a rapid trip through glow, blue sky, silver lining to "we don't giveadamm" when, like three very limp rags, they collapsed in unison under a tree on the aca demy campus.

As they blended their harmonious snores, a fun-loving sophomore happened upon them. In a mad moment, he smeared their faces with black paint.

The next A.M. when the effect of the P. M. had worn off, the old boys bestirred themselves. Each looked at the other and began to make like hyenas that had just heard the latest "Pierre" story.

Suddenly one of the profs stopped laughing for he realizes he's got a paint job on his kisser, too.

How did he figure it out?

Shrdlu



## Ramset bottoms\* installed in new open hearths at Youngstown's Indiana Harbor Works

YOUNGSTOWN Sheet and Tube is making steel on Ramset bottoms in its new open hearth shop at the Indiana Harbor Works.

A majority of the bottoms installed in new open hearth shops in the past several years are of rammed construction—and of these hearths, Ramset installations hold a 2 to 1 advantage over any other magnesia ramming mix.

Basic Refractories pioneered the development of rammed hearth methods nearly fifteen years ago. These methods have been continually refined over the intervening years by

the practical steelmakers who make up Basic's sales and service staff. A few years ago, Basic supplemented this advanced technique by making available mixing, conveying and compacting equipment specifically designed for the job.

So, in selecting Ramset, a steelmaker avails himself of a proven refractory and the most modern methods and equipment for installing it, as well as of the services of Basic personnel who, by background and training, are skilled in the use of granular basic refractories.



\*Surfaced with grain magnesite

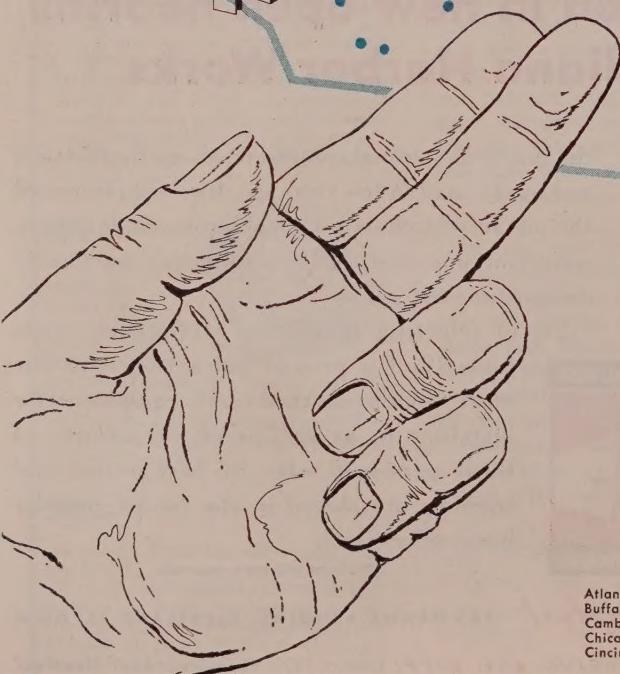
### Basic Refractories Incorporated

845 HANNA BUILDING, CLEVELAND 15, OHIO

Exclusive Agents in Canada: REFRactories ENGINEERING AND SUPPLIES, LTD., Hamilton and Montreal

# General

*teamed up*



"More Power  
 to You"

## NATIONAL SALES OFFICES

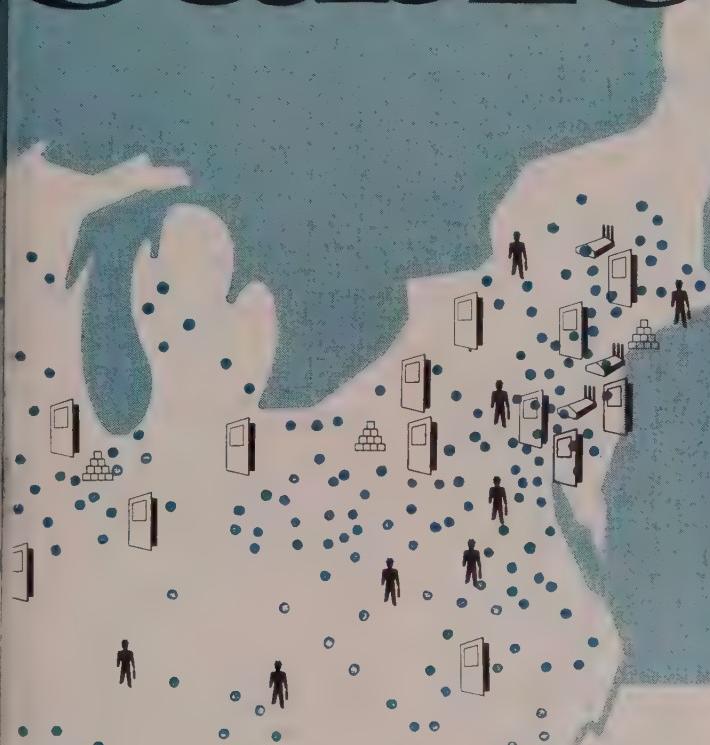
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production men can actually participate and test the results on your own products.

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**NELSON STUD WELDING**

DIVISION OF GREGORY INDUSTRIES, INC., LORAIN, OHIO



## LETTERS TO THE EDITORS

### Aluminum Coatings Attention

We have heard of a new process to impregnate mild steel with a complex aluminum alloy which can resist oxidation at temperatures up to 1000° C. Protection against sulphur fumes and sea-water corrosion is also afforded. Can you give us any further information on the subject?

I. C. Friedman  
Federal Auto Products Co., Inc.  
Chicago

• Cladding aluminum on steel is done by the following processes: Mollerizing (American Mollerizing Corp., Burbank, Calif.), calorizing (General Electric Co.) and the Aldip process (General Motors Corp.). STEEL will publish two articles on aluminum coatings in the Aug. 3 and Aug. 10 issues.—ED.

### Big City Statistics



In the June 29 issue on p. 55 there's an article titled "Metropolitan New York: Colossus of Industry." In the last paragraph is a reference to a report prepared by the *New York Times*: "The port of New York handled almost 33 million long tons of exports and imports in foreign trade in 1952."

We contacted the *New York Times* and were referred to an old article dated May 4, 1952, in which the latest actual figures are for 1950 with estimated figures for 1951. We feel certain there is a later report with more recent statistics. Can you tell us where we might obtain it?

C. H. H. Weikel  
manager, Commercial Research  
Bethlehem Steel Co.  
Bethlehem, Pa.

• The report from which we prepared our article was published by the *New York Times Research Department* in June, 1953. You can reach that department in New York by calling Lackawanna 4-1000, extension 528.—ED.

### Another Source of Supply

On p. 87 of the June 29 issue, you mention that Rodney Metals Inc. is the only mill in the country that could furnish .002-inch stainless steel strip "as wide as 25 inches."

Wallingford Steel Co. is similarly equipped to make such thick gages in as wide a width.

G. M. Cleborn  
assistant to the president  
Wallingford Steel Co.  
Wallingford, Conn.

• If we had checked this information in our Stainless Steel Buyers Guide, we would have avoided this error. The

Please turn to page 12

**NEW PHONE  
NEW FACILITIES**

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## Niagara Aero Heat Exchanger quickly pulls down the initial peak load of heat in quenching . . . and saves cooling water

Accurate control of quench bath temperatures and quickly effective capacity to handle the initial peak load of heat in quenching prevents production set-backs, increases the output of your heat treating department, prevents oil fires, saves you losses from rejected parts.

Niagara Aero Heat Exchangers give you this control in both furnace and induction hardening methods. They prevent both over-heating and over-cooling of the quench bath. Hundreds of heat treaters know they prevent many troubles, constantly improve quality and increase production.

They quickly pay for themselves by saving cooling water coils and extend your quench capacity without extra water or cooling tower.

Write for Bulletin #120 giving complete information.

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Over 35 Years' Service in Industrial Air Engineering

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Experienced District Engineers in all Principal Cities of U. S. and Canada

### LETTERS

Concluded from page 10

Guide lists Wallingford Steel Co. as producing that type and size of stainless.—ED.

### Association's Interest Grows



Please enter our subscription to STEEL, ref. your fine article on trade associations ("Trade Associations: How To Grow with Them," Mar. 9, p. 76).

M. J. Ewald  
executive secretary  
Cutting Tool Manufacturers Association  
Detroit

### Getting Straight on Prefabs

The story "Prefab Steel Buildings Turn Civilian" (June 22, p. 55) was very interesting and timely. May I have permission to reproduce the article for distribution to our building salesmen and distributors?

Possibly because of the large number of companies which are associated with Dresser Industries Inc., some of the associate companies, on occasion, are credited with the manufacture of products which they do not produce. Such was the case in the June 22 article.

The Ideco Division, Dresser-Stacey Co., is the associate Dresser Industry organization which produces steel buildings. Dresser Mfg. Division, the division mentioned in the article, produces pipe couplings, fittings and sleeves.

D. Danell Byrd  
sales promotion manager  
Dresser-Stacey Co.  
Ideco Division  
Columbus, O.

• Permission to reproduce the article is granted. Thanks for setting us straight.—ED.

### Molybdenum for Die Casting?



We noted with much interest your item in STEEL for June 15, "Boride Cutting Tools" (p. 89), regarding use of pure molybdenum and its alloys to spearhead progress on dies for die casting high temperature metals such as brass, bronze and perhaps beryllium-copper.

We would appreciate knowing where we could get further information.

Wright Bronson Jr.  
Bronson & Co.  
Akron, O.

• We suggest you write Climax Molybdenum Co., New York, and Molybdenum Corp. of America, Pittsburgh.—ED.

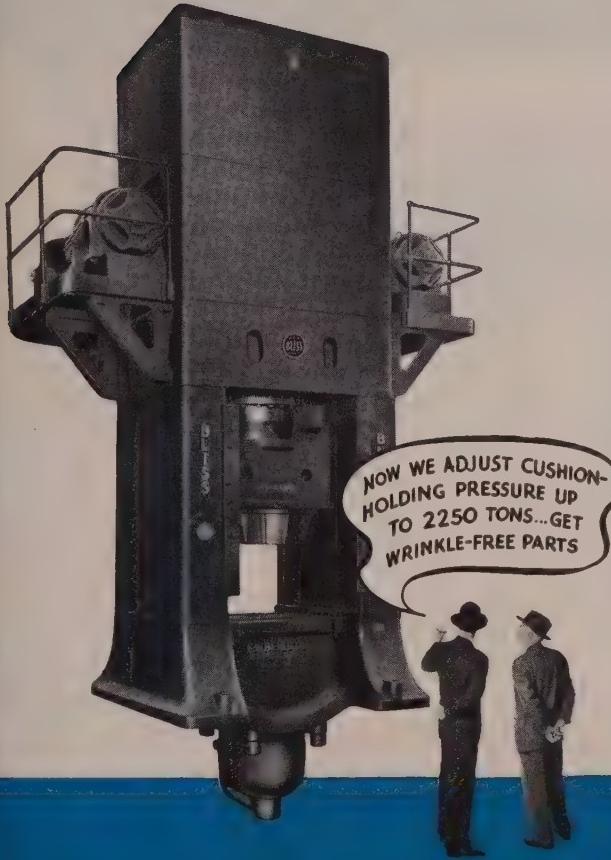


Rubber-pad draw die in open position on a single-action press with cushion: To provide higher pressure, pad area is decreased by inserting a bushing inside rubber retainer ring.



A double-action rubber-pad die in closed position: The high pressures, which rubber pad withstands, make possible production of reverse curves (like that at top of punch).

## Deep, Complex, Wrinkle-free Shapes through Rubber-Pad Press Forming



You can now have short-run production of deep-drawn parts through rubber-pad forming—with substantial savings in tooling time and costs. Required heavy pressures are delivered by single and double-action hydraulic presses with a holding cushion in the bed and rubber pad on the slide. Compared with drop-hammer methods, the rubber-pad process offers a *better product at less cost*.

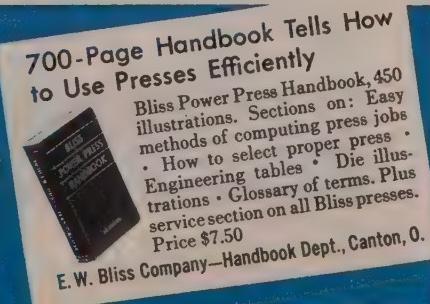
Airframe manufacturers, after experimenting with the double-action type of rubber die work, report pressures from 1500 psi to 4000 psi. In some instances pressures of 15,000 psi on the rubber itself are found desirable.

Highly versatile Bliss Hydraulic Presses with blank-holding cushions built into the bed and cushion capacities up to about ninety percent of the press rating, are available in a wide range of sizes. Flexible pressure controls to suit the work range are furnished. The rubber pad and retaining ring of suitable dimensions may be ordered with the press. Submit samples or part prints. Bulletin 39 gives a description of the process.

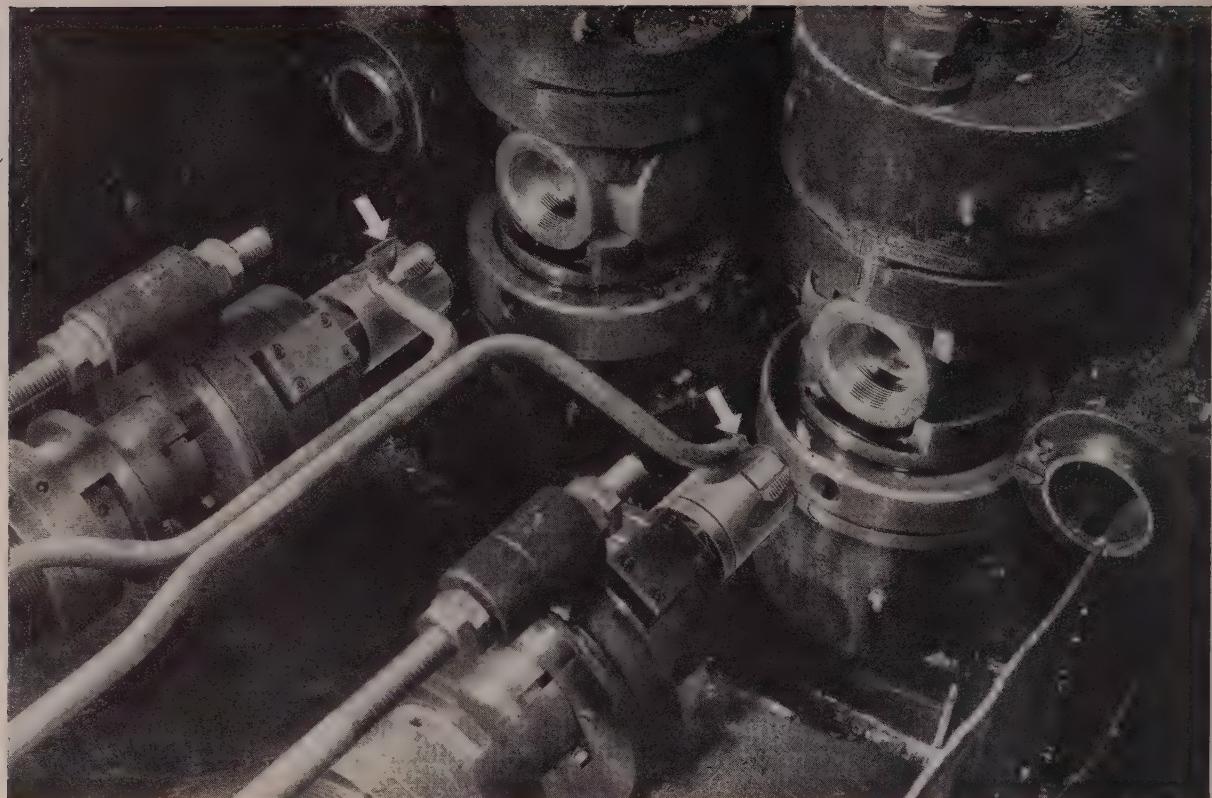
**E. W. BLISS COMPANY, CANTON, OHIO**  
*Mechanical and Hydraulic Presses, Rolling Mills,  
Container Machinery*

From the right press for a given job...  
to a complete press room...

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E. W. Bliss Company—Handbook Dept., Canton, O.



# LANDIS TAP MASS-PRODUCES THREADS RATED FOR 6,000 POUNDS PRESSURE!!

W-S forged steel pipe fittings guarantee the uninterrupted flow upon which the economy and safety of modern service and process piping lines depend. LANDIS Taps are regularly used by the Watson-Stillman Fittings Division, H. K. Porter Company, Inc., of Roselle, N. J., to cut the precision threads in these fittings required to withstand high pressures without leak.

In the illustrations, LANDIS LL Rotary Taps on a special drilling and tapping machine are threading W-S 2" 90° Pipe Elbows. 2" 11½ pitch ASTP threads are tapped in steel forgings at the rate of 35 surface feet per minute. Even at this speed 4000 threads are completed between chaser grinds, holding tool cost and downtime to a minimum.

LANDIS LL Taps are designed for the high-speed production of precision tapered threads. The taper of the threads is mechanically controlled by the receding action of the chasers. Cutting strains are thereby reduced, thread accuracy and finish improved, and chaser life lengthened. The design of the ALM Head features unevenly spaced chasers which provide maximum rigidity and prevent chatter.

Detachable heads allow each size of Tap to produce a wide range of thread diameters. For example, the 2" LL Tap with different size heads will cut pipe threads from 1" to 2½". Both Rotary and Stationary models are built in sizes up to 13⅓".

For further information, send specifications and ask for Bulletin G-95.

THE **LANDIS Machine CO.**



WAYNESBORO  
PENNSYLVANIA



*Fit as a  
Fiddle*

**Eagle Music Wire**

*—for Dependable Springs—*

has been famous for its  
UNIFORM QUALITY and  
PRECISION STANDARDS

*for more than fifty years*

WASHBURN WIRE COMPANY, NEW YORK CITY

**WASHBURN**

CLEAN, UNIFORM BILLETS - STRIP - RECTANGULAR, ROUND, FLAT RODS  
TEMPERED AND UNTEMPERED FLAT AND ROUND HIGH CARBON WIRES



economical  
metal cutting  
with

**VICTOR "Moly"**  
HIGH SPEED  
POWER BLADES

Whatever your metal cutting problem, VICTOR "Moly"® High Speed Power Blades will cut your initial blade cost 15%, and give you the additional economy of more efficient cutting.

Quality makes VICTOR Blades industry's preference—top-quality, carefully heat-treated steel, fabricated on specially designed equipment, to give you fast, economical cutting and long blade life. Send for the free VICTOR Metal Cutting Booklet which tells you how to pick 'em—Gold "Moly"® High Speed or Silver Unbreakable High Speed.

### ECONOMICAL SERVICE from your **VICTOR DISTRIBUTOR**

VICTOR "Moly"® High Speed Power Blades are always sold through the recognized Industrial Distributor because he is closest to your problems. You know and have confidence in him, and he can give you delivery from stock where and when you want it.

© 1922

**VICTOR**

SAW WORKS, INC. • MIDDLETOWN, N.Y., U.S.A.

Makers of Hand and Power Hack Saw Blades,  
Frames and Metal Cutting Band Saw Blades

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*The Weekly Magazine of Metalworking*

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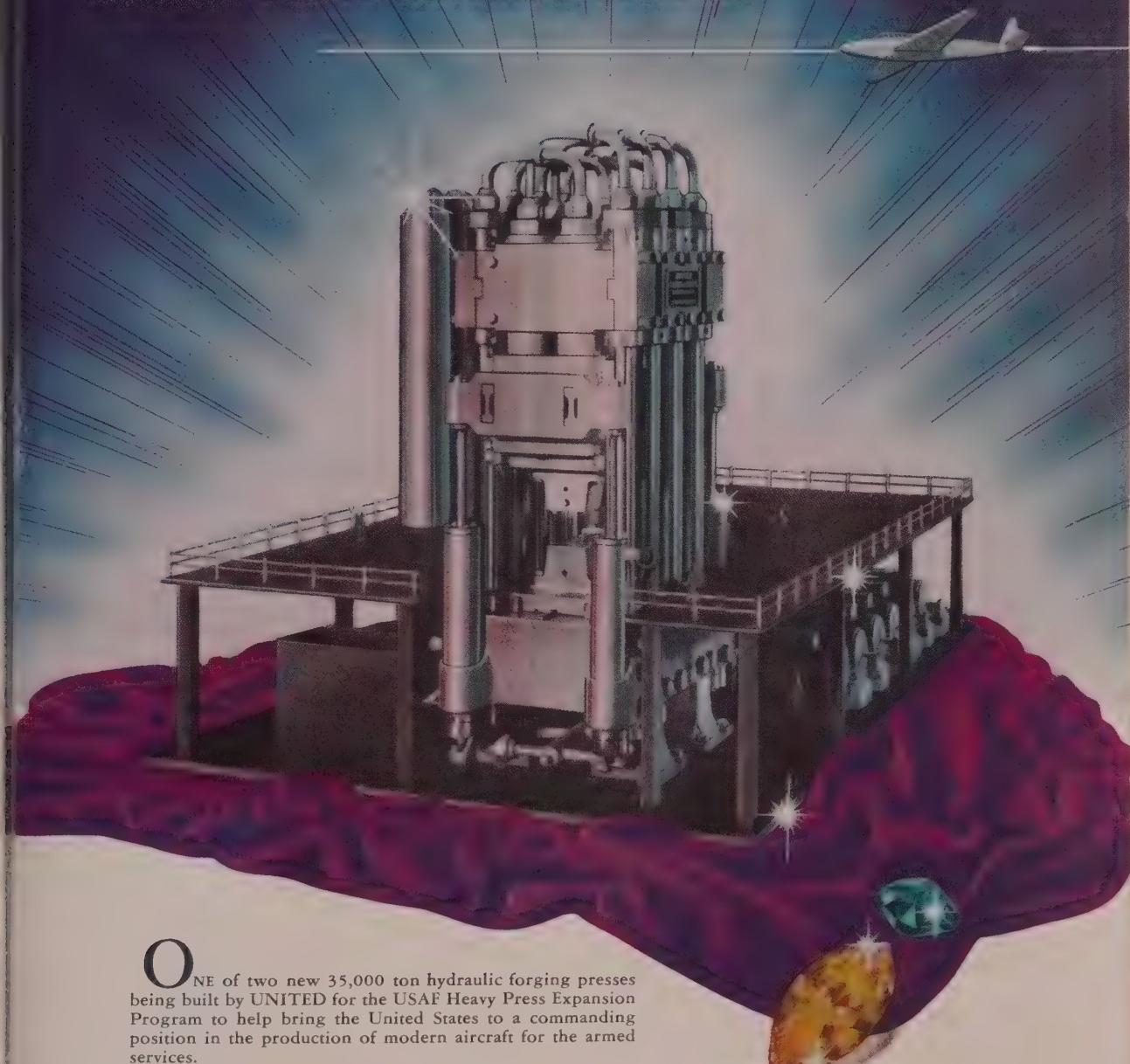
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# UNITED

## 35,000 TON FORGING PRESS



ONE of two new 35,000 ton hydraulic forging presses being built by UNITED for the USAF Heavy Press Expansion Program to help bring the United States to a commanding position in the production of modern aircraft for the armed services.

# UNITED

ENGINEERING AND FOUNDRY  
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# POWERED FOR PRODUCTION

**W**ARNER & SWASEY SADDLE TYPE TURRET LATHES deliver tremendous power for the toughest jobs. The one-piece bed, with integrally cast head and VEE-WAYS, carries massive solid weight at the right places. And with diagonal cross-ribbed reinforcing it insures the rigidity that holds accuracy.

You can really hog off tough metal *fast* with any Warner & Swasey Heavy Duty Machine. You can give the job everything that carbide tooling can take.

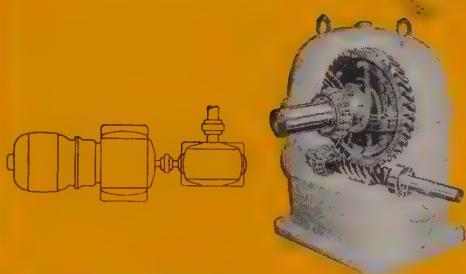
And along with power, these machines have an industry-wide reputation for *holding* their precision accuracy. Warner & Swasey's are built to provide the right combination of power, speed and accuracy for the most rugged, heavy duty service throughout many years of trouble-free service.



**WARNER  
&  
SWASEY**  
*Cleveland*  
PRECISION  
MACHINERY  
SINCE 1880

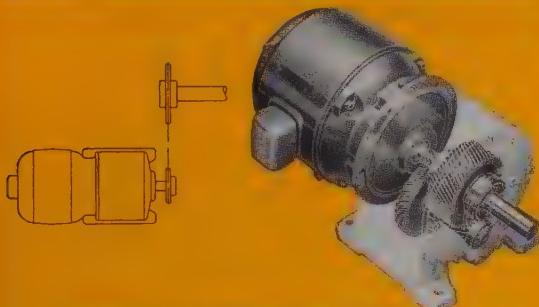
YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

# LINK-BELT makes even your most complex speed reduction jobs simple



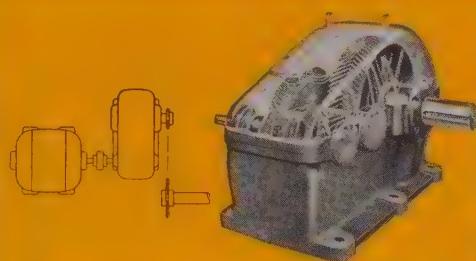
## Worm Gear Drive

WORM GEAR and P.I.V. variable speed drives are shown direct-coupled. Link-Belt worm gear drives are available in 3.1:1 to 8000:1 reduction ratios — 1400 to 123,000 in. lbs. torque — 0.22 to 564 output shaft rpm. Ask for Book 2324A.



## Gearmotor & Helical Gear Drive

GEARMOTOR is shown with roller chain drive. Link-Belt Helical Gear Drives, Gearmotors and Motogears are available in 6.2:1 to 292:1 reduction ratios — 1 to 30 hp — 6 to 280 output shaft rpm. Ask for Books 2247 and 2451.



## Herringbone Gear Drive

HERRINGBONE GEAR DRIVE is shown connected by flexible coupling to motor and with roller chain takeoff. Link-Belt Herringbone Gear Drives are available in 2.84:1 to 326:1 ratios — 0.4 to 2480 hp — 2.2 to 623 output shaft rpm. Ask for Book 2519.

## Get the proper drive combination that best meets your overall requirements from a broad line

ONLY Link-Belt can offer you such a broad selection of helical, herringbone and worm gear drives . . . plus the pre-engineered correlation of all its other power transmission equipment. This exclusive combination not only simplifies even the most complex problem — it actually cuts your costs. Here's how:

(1) *You save on installation.* Dimensions of all components — chains, sprockets, couplings, bearings — are correlated with the reducer's. There's no alignment problem . . . no need to exchange drawings with other suppliers.

(2) *You save on operating costs.* Power consumption is lower because overall efficiency is

assured. And maintenance costs go down when you rely on quality-built Link-Belt equipment.

Let a Link-Belt representative help you figure the best combination for your speed reduction requirements. You'll find it pays to make the nearby Link-Belt sales office or distributor your power transmission headquarters.

**LINK-BELT**

ENCLOSED GEAR DRIVES

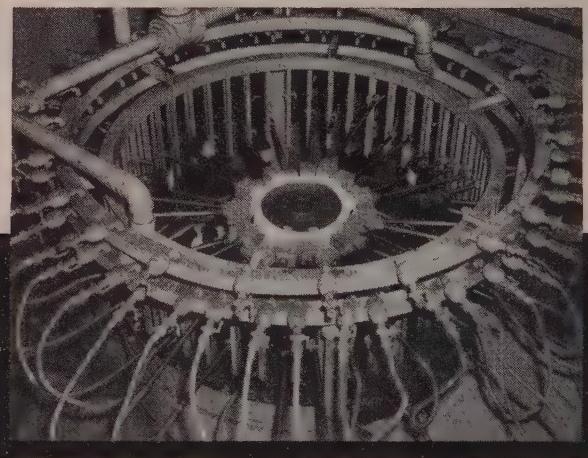
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LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle, Toronto, Springs (South Africa), Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities.

# case-hardening of gears with efficient **GAS** equipment

## cuts processing time 75%

The process efficiency of GAS for heat-treating is emphasized by the flexible equipment employed by Wesley Steel Treating Company, Milwaukee, to case-harden gears and sprockets up to 60" diameter.



Case depth and hardness are completely and precisely controlled in this efficient GAS heat-treating installation. Because the unit is so simply adjusted for applying the productive flames of GAS to gears of varying diameters, this modern GAS equipment is flexible enough for a wide range of heat-treating applications.

The process efficiency of GAS for heat-treating is demonstrated by the important time reduction from 1 hour with previous equipment to 15 minutes with this modern GAS installation. Furthermore, the complete controllability of the heating and quenching cycle in this unit has reduced the rejects in gears and sprockets of every size.



There are many important reasons why GAS is the ideal fuel for production-line processing. You'll find it worthwhile to evaluate the advantages of GAS versus other processing methods.

**AMERICAN GAS ASSOCIATION**  
420 LEXINGTON AVENUE • NEW YORK 17, NEW YORK

# SHEARING 20,000,000 lbs. of steel

TAKES DEPENDABLE PERFORMANCE

Steady, rapid and accurate production is maintained by these five Cincinnati Shears at the Art Steel Company, Inc.

Limits are to .010", and gauging is both fast and accurate with the easily operated Cincinnati front controlled power back gauge.

Despite the day-in and day-out work schedule, knives are sharpened but once a year.

Investigate these accurate, dependable Cincinnati Shears—you will find them profitable in your shop. Remember, straight-edged square blanks, accurate to size, are produced at low cost on these modern Cincinnati Shears.

Write for Shear Catalog S-6.

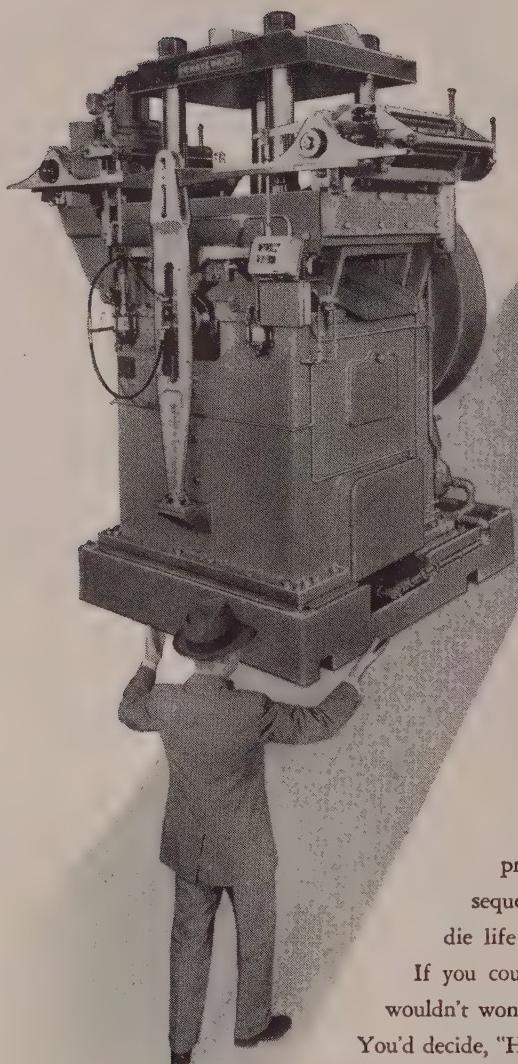
**THE CINCINNATI SHAPER CO.**

CINCINNATI 25, OHIO, U.S.A.

SHAPERS • SHEARS • BRAKES



Photos—  
Courtesy the Art Steel Co., Inc.,  
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# RUSH YOUR SALES DEPARTMENT A PRICE CUT

## DO YOUR STAMPING PROGRESSIVELY ON HENRY & WRIGHT DIEING MACHINES

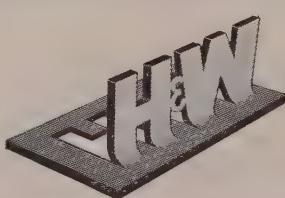
Figure it out. If you could produce dozens of different jobs on one press . . . if you could combine separate operations into one progressive sequence . . . if you could improve accuracy, get higher speeds with longer die life . . . and yet grind less metal off the die to sharpen it . . .

If you could get these cost-cutting, labor-saving, inspection-reducing benefits, you wouldn't wonder whether you could afford a Henry & Wright Dieing Machine now.

You'd decide, "How can I afford to be without it now?" Well, let's talk serious business, because those are just the benefits everyone gets with Henry & Wright Dieing Machines—and, brother, how the Sales Department will love that price cut you'll give them.

## HENRY & WRIGHT DIEING MACHINES . . . A PROFIT WITH EVERY STROKE

*Only the best is good enough*



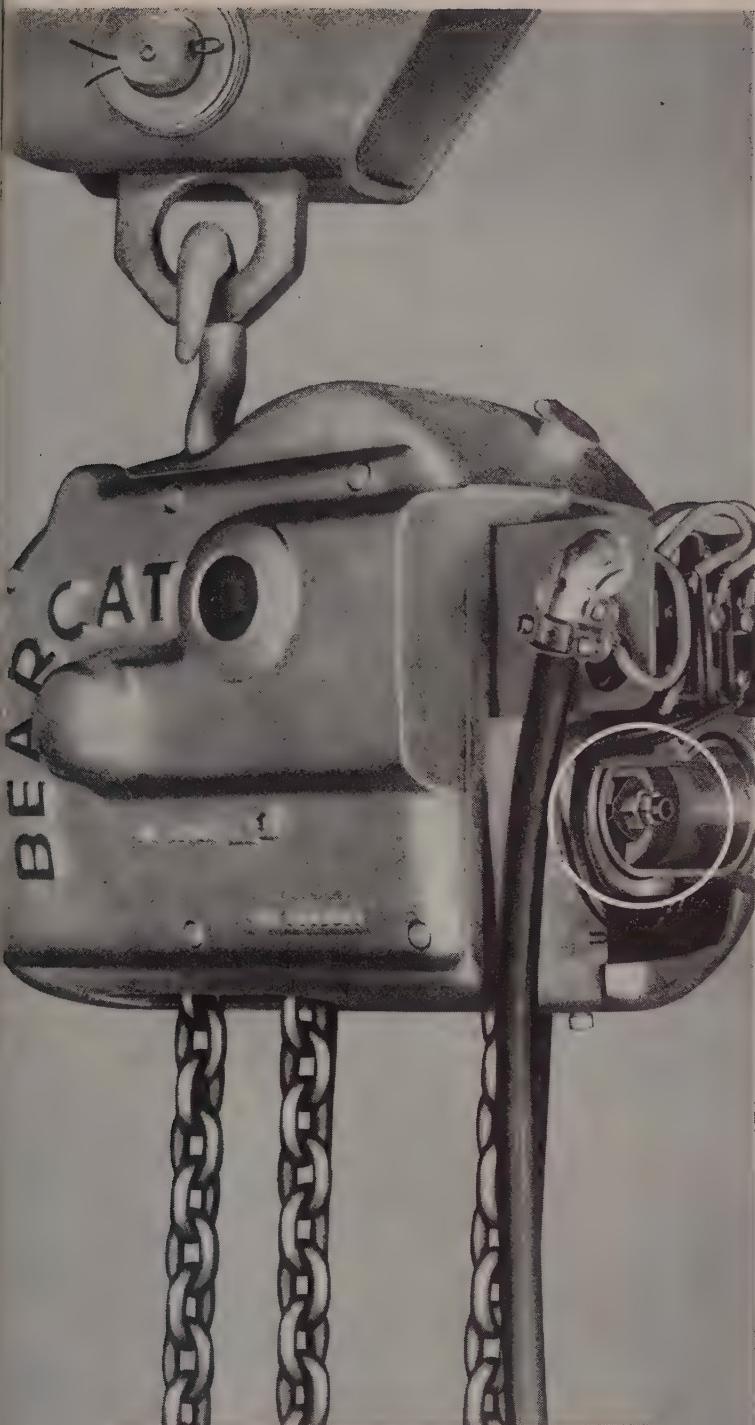
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DIVISION OF EMHART MFG. CO.

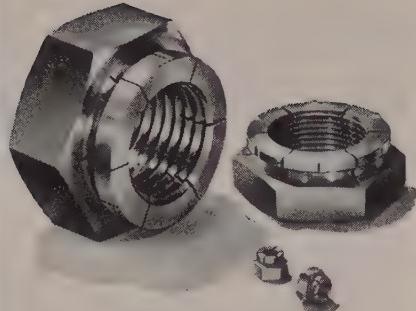
HARTFORD 1, CONNECTICUT

NEW CATALOG

Get up-to-the-minute facts on Dieing Machines — capacities range from 25 tons to 2500 tons. Write Henry & Wright, 441 Windsor St., Hartford, Conn.



THE HARRINGTON COMPANY, hoist maker since 1876, uses a FLEXLOC Self-Locking Nut to hold the brake mechanism on its Bearcat Electric Hoist. This nut has proved an effective solution to a difficult problem.



## Why FLEXLOCS are better locknuts

Compare the features of FLEXLOCS with those of any other nut, and you'll readily see why we say they are better locknuts.

FLEXLOCS are one piece, all metal. They require no lockwasher, no cotter pin, no auxiliary locking device to keep them on a bolt. They are not affected by moisture, dust or high temperatures. Standard FLEXLOCS are designed for temperatures up to 550°F.

FLEXLOCS are stop and lock nuts. They won't work loose once their locking threads are fully engaged; therefore they stay put anywhere on a bolt. Seating is unnecessary. And FLEXLOCS can easily be removed from a bolt and reused again and again without losing their locking ability.

For more information about FLEXLOCS and samples for test purposes, see your FLEXLOC distributor, or write SPS, Jenkintown 33, Pa.

**FLEXLOC**  
®

LOCKNUT DIVISION

**SPS**

JENKINTOWN PENNSYLVANIA

*Our Fiftieth Year : A START FOR THE FUTURE*



## FASTERMATIC

### Produce Faster— Pay Off Faster

It may seem incredible, in this day and age, for any major machine tool to "buy" itself in nine short weeks of operation. But that's exactly what the Fastermatic Automatic Turret Lathe did on this job of machining clutch plate hubs.

Former time, on hand-operated turret lathes, was 15 minutes per piece. The Fastermatic, with automatic control of all machine functions, reduced the time to only 3 minutes, floor to floor.

Earnings piled up so fast over former production costs that the Fastermatic paid for itself in just 9 weeks—or 893 hours of operation.

Do you have work that permits a number of cuts in one chucking? Investigate the Fastermatics. You may have a big opportunity to increase production, cut costs and save man power.



In this tooling setup, only 3 turret faces are needed to turn each part. With duplicate tooling on the remaining 3 faces of the hexagon turret, 2 parts are machined with each complete turret cycle. The operator merely loads and unloads the work.

**THE GISHOLT ROUND TABLE** represents the collective experience of specialists in the machining, surface-finishing and balancing of round and partly round parts. Your problems are welcomed here.

# GISHOLT

MACHINE COMPANY

Madison 10, Wisconsin



TURRET LATHES • AUTOMATIC LATHES • SUPERFINISHERS • BALANCERS • SPECIAL MACHINES

Count on

# WEIRTON

HIGH-CARBON STRIP

COLD-ROLLED SPRING STEEL

for uniform high-speed  
blanking and cold forming

Whether your problem is cold forming or blanking, you can depend on Weirton cold-rolled spring steel for best results. It has proved itself in a multitude of applications by consistently meeting the requirements of a variety of products where high fatigue-resistance is a principal factor.

Where superior forming qualities are of prime necessity, Weirton supplies spheroidized-annealed cold-rolled spring steel. The controlled grain structure provides exceptional ductility—assuring you of simple, economical fabrication.

Weirton also supplies cold-rolled spring steel that is temper rolled to produce controlled ranges of hardness and tensile strength. The desired ranges are designed to meet your specific requirements—assuring you of clean, economical blanking.

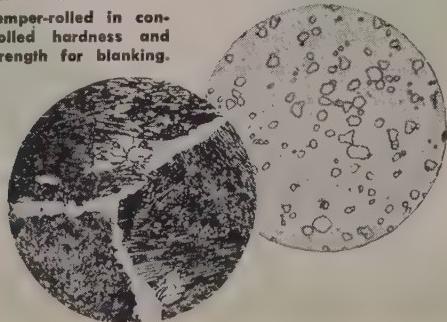
Close manufacturing control has resulted in these highly desirable qualities—unique in Weirton high carbon strip:

- Accurate response to heat treatment.
- Uniformity of gauge and width.
- Uniform chemical and physical properties.
- Exact consistency of grain structure.
- Controlled decarburization limits.

Weirton high carbon strip is available with the desired chemical analysis and for specific heat treating and hardness ranges, in widths up to seven inches.

**SPHEROIDIZED**  
Annealed, soft and ductile  
—ideal for cold forming  
operations.

**PEARLITIC**  
Temper-rolled in controlled hardness and strength for blanking.

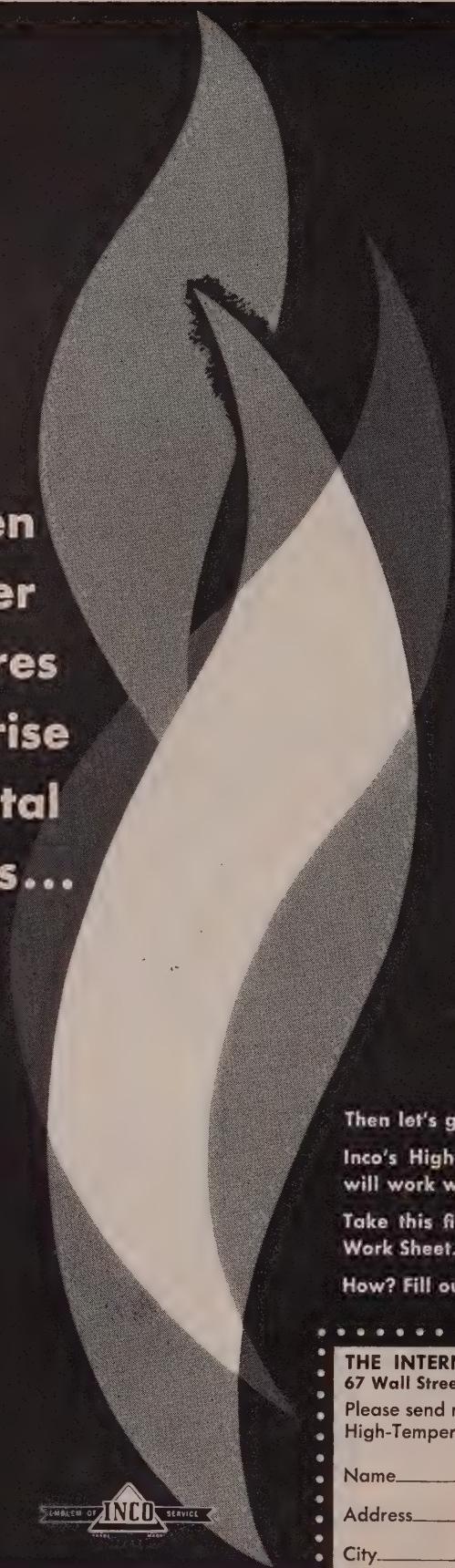


**WEIRTON STEEL COMPANY**

WEIRTON, WEST VIRGINIA

NATIONAL STEEL CORPORATION





**when  
higher  
temperatures  
give rise  
to metal  
problems...**

**Then let's get together.**

**Inco's High-Temperature Engineering Service  
will work with you to work out a solution.**

**Take this first step. Get a High-Temperature  
Work Sheet.**

**How? Fill out and mail this coupon.**

• • • • •  
**THE INTERNATIONAL NICKEL COMPANY, INC.**  
67 Wall Street, New York 5, N. Y.

Please send me the  
High-Temperature Work Sheet.

• Name. \_\_\_\_\_

• Address. \_\_\_\_\_

• City. \_\_\_\_\_ State. \_\_\_\_\_



July 27, 1953

# Metalworking Outlook

## Third Big Labor Group?

Formation of a third major labor group is a distinct possibility. Its nucleus could be John L. Lewis' United Mine Workers with 400,000 members, David J. McDonald's United Steelworkers-CIO with 1.3 million members and Dave Beck's International Brotherhood of Teamsters-AFL with 1.4 million members. Aside from the friction generated by rivalries in the ranks of labor leaders, the Lewis-McDonald-Beck troop considers the continued strong leanings of the AFL and CIO toward the Democrats as "unrealistic." Mr. Beck is a long-time Republican. All three labor chiefs have been entertained recently at the White House.

## Needed: More Apprentices

The U.S. with a population of 159 million has less than 250,000 persons receiving apprenticeship training. West Germany with a population of 47 million has 2 million apprentices. Experts on the subject believe this country needs at least 2 million trainees to combat present and future shortages of skilled workmen. The greatest need is for apprentices to become tool and diemakers, machinists, patternmakers and molders. Working toward solving such problems will be the First North American Conference on Apprenticeship to be held Aug. 2-9 in San Diego, Calif.

## To Pick an Executive

How do you choose a man for executive duties? Association of Consulting Management Engineers suggests that these four questions should guide you: Does the man being considered have high moral character and command respect? Does he possess the administrative ability to carry the job? Does he have the brains to handle the position? Does he possess intellectual honesty?

## Houses: 1 Million Starts

Watch for a dip in homebuilding, but not a sharp one. New housing starts reached 577,100 in the first six months, 5 per cent more than for the corresponding period in 1952. As it looks now, 1953 starts should hit at least 1 million, compared with 1,127,000 in 1952, 1,090,300 in 1951 and 1,396,000 in 1950. Public housing will slip in the last half because Congress approved only 20,000 starts for fiscal 1954.

## Steel Is a Bargain

The steel in an \$11.95 electric iron costs only 47 cents, estimates American Iron & Steel Institute, which uses prices as of March, 1953. It costs \$2.25 in a \$29.95 baby carriage, \$225 in a \$1984 automobile, \$13.80 in a \$370 range, \$1.60 in a \$89.95 vacuum cleaner, \$3.85 in a \$165 typewriter,

M  
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OUTLOC  
METAL  
OUTLOOK

# Metalworking Outlook

\$13.56 in a \$350 refrigerator, 72 cents in a \$21.95 automatic toaster and 10 cents in a \$27.50 electric shaver.

## German Steel Stocks Climb

Surplus steel stocks estimated at several hundred thousand tons are piling up in West German steel plants. Unsold inventories are mainly in plates, sheets and bars. German steel prices, among the highest in Europe, are bound to come down. Currently they're about three and a half times what they were in 1938, while industrial prices have risen on the average only 126 per cent.

## Shipbuilders Going Under?

Shipbuilding employment at major private yards has dwindled to less than 50,000, and the industry faces a nearly complete cessation of activity by the end of next year. Daniel D. Strohmeier, a Bethlehem Steel Co. vice president in charge of the Shipbuilding Division, believes that the U.S. should help keep a core of the industry alive by paying part of the cost of ships that can be converted to troop carriers, by seeing that the merchant marine policy set in 1936 is carried out and by lifting some of its present restrictions on domestic builders who wish to construct vessels for foreign owners.

## More Trouble for Mr. Wilson

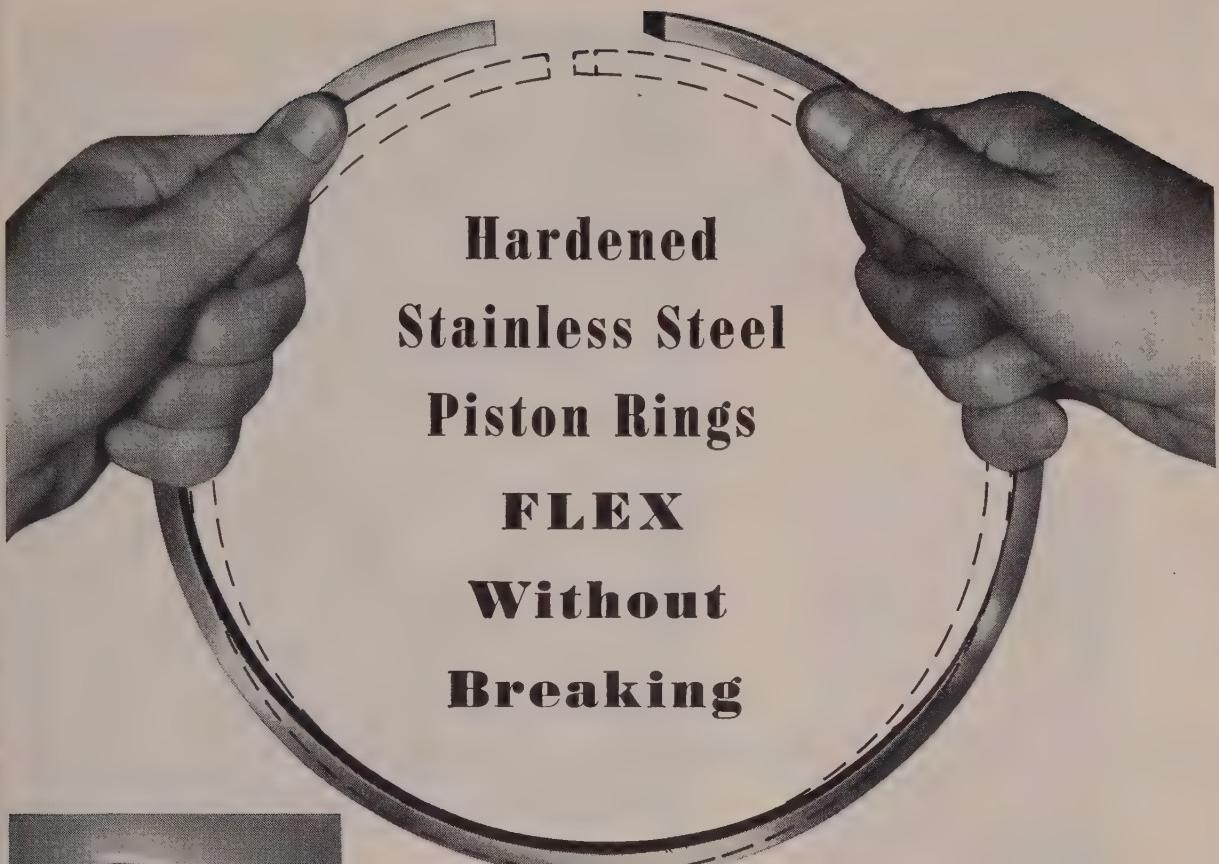
Congress charges the Defense department with "inordinate slowness" in improving its management of military supply. Congress particularly wants an immediate study to develop a plan for disposal of "billions of dollars' worth of surplus stock" which will build up in the next few years because of obsolescence and other factors. Secretary Charles Wilson is given until Oct. 31 to evolve a program.

## Straws in the Wind

Commercial operations of the armed forces, such as preparation of scrap iron, steel and aluminum for sales to mills, should be continued as long as they show a profit, says Defense Secretary Charles Wilson . . . Iron Ore Co. of Canada expects to start open pit mining operations in the Ungava region of northern Quebec next year . . . Price reductions of 15 to 20 per cent on certain metal-cutting tools and tool blanks have been announced by Kennametal Inc. . . . Congress will have to raise taxes next year or face another big deficit, possibly as much as \$10 billion, in fiscal 1954, says congressional fiscal expert, Sen. Harry Byrd (Dem., Va.) . . . Class I railroads installed 1296 new locomotives in the first six months of 1953, 474 less than in the same period in 1952.

## This Week in Metalworking

Industry shows greater unanimity about what depreciation reforms it wants (p. 35) . . . The \$196 million worth of American industry that went up in smoke in 1952 demonstrates the value of fire protection (p. 36) . . . Watch for more jobbers of aluminum extrusions (p. 37) . . . Expansions at Pittsburgh Steel and Anaconda take definite steps forward (pp. 38-39) . . . But Yolo Steel & Metal Co. remains a paperwork mystery as ODM grants a certificate of necessity for an \$11-million electrolytic tin plate mill to the firm (p. 40) . . . Foremen play a large part in your company's operating efficiency. Do they have the proper incentives to improve it? (pp. 46-47).



**Hardened  
Stainless Steel  
Piston Rings  
FLEX  
Without  
Breaking**



Armco Stainless Steel piston rings are made for the tough jobs. These include high temperature applications such as seal rings for jet engines and steam turbines, and for actuating cylinders of aluminum die casting machines. Because of their corrosion resistance the rings are found in valves and pumps used by the chemical processing industry.

**STRONG BECAUSE ROLLED**

These stainless steel rings are made of rolled bar stock, stress-relieved after hardening to Rockwell C-48. They have a high degree of accuracy. As shown, the hardened rings can be twisted through 180° without fracture. Wrought condition of the metal eliminates the danger of breakage during installation.

**STANDARD AND SPECIAL TYPES**

Hardnesses up to Rockwell C-57 or better

can be obtained with the standard hardenable chromium stainless steels, and Armco makes them all. In addition, there are the Armco Precipitation-Hardening Stainless Steels, 17-4 PH and 17-7 PH, hardened through low-temperature heat treatment.

**PRECIPITATION-HARDENING TYPES**

Armco 17-4 PH is a bar grade that develops high strength through a single, low-temperature heat treatment. Armco 17-7 PH is made in sheets, strip, plates, bars and wire. The grade is supplied in the annealed condition for severe drawing and forming. After fabrication, high strength and hardness are developed through a double low-temperature heat treatment.

Write for the booklet, "Armco Stainless Steels," and for the bulletin on the Armco Precipitation-Hardening grades.

**ARMCO STEEL CORPORATION**

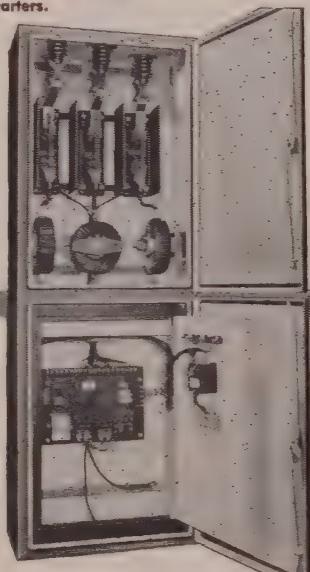
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600-Ton Verson Hydraulic Press for forging 155 mm projectiles. EC&M VALIMITOR Starters provide continuous protection for the 2300 volt hydraulic pump motors serving several of these Verson All Steel Presses in a southern shell plant.



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**and EC&M VALIMITOR Starters provide it**



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Then—they heard about EC&M VALIMITOR Starters, which offered an ideal solution to the knotty problem.

No more calculations . . . no worry about starters being outmoded by an unexpected increase in available KVA, now or in the future. Furthermore, these EC&M Starters could be ordered by specifying only the motor nameplate data —, and after being applied, there was no danger of getting caught "short" with a "short" the starters couldn't handle. EC&M VALIMITOR Starters give permanent protection. Investigate them for your 2300-4600 volt motor-drives.



**THE ELECTRIC CONTROLLER & MFG. CO.**  
2698 EAST 79TH STREET • CLEVELAND 4, OHIO



July 27, 1953

## On Rubber Tires

Many countries in South America, Africa and Asia face transportation problems somewhat similar to those which confronted the United States during the last half of the nineteenth century. In the 1870s, 1880s and 1890s, we built tens of thousands of miles of railroads to open up our western lands. Today and in the future, the need for better transportation in many underdeveloped countries is more likely to be met by building extensive roadways than by building railroads.

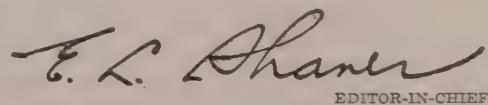
This tendency to rely more upon highways and less upon railroads has been growing for a long time. When the United States got into World War I it was only natural that our own railroad experts built and operated a railroad from St. Nazaire to the front in France. A quarter-century later in World War II we found it natural to build two super-highways from sea to the battle line instead of railroads.

In fact, highway construction played an important role in many phases of World War II. Examples are the Alcan Highway, built as a military highway from British Columbia to Fairbanks, Alaska, and the famous Burma road, built to expedite the movement of supplies into China. The fact that the military turned almost instinctively to these roadways, and to air transport, instead of to railroads, is significant.

Today we witness the same trend in almost every peacetime undertaking. Within our own borders, the strongest accent in transportation is upon super-highways or toll roads and upon air transport. The single exception to this trend on the North American continent is the building of a 700-mile railroad to carry Labrador iron ore to the St. Lawrence river.

The great growth in highway transportation is affecting our economy more than we realize. Motor trucks already handle more than three quarters of domestic freight tonnage. We have 10 million trucks on the highways. As new toll roads now building or contemplated are placed in operation, the shift to traffic on rubber tires will be even more pronounced.

As this same movement later gains momentum in South America, Africa and Asia, new chapters will be written in the history of land transportation.



EDITOR-IN-CHIEF

**EXTRUDING STEEL COLD:** Under the pressure of war, man sometimes is driven to adopt measures which later prove to be valuable in peacetime pursuits. One of the more recent

examples of this is the cold extrusion of steel. During World War II, Germans—forced to produce serviceable shell cases from ordinary steel with a minimum of scrap—hit upon the cold ex-

trusion process. After the war, Americans studied the German technique (p. 78) and in time developed it to a point where cold extrusion is a far more promising process for numerous peacetime applications than it was for wartime needs in the early 1940s. All major automobile manufacturers, many parts makers and others in the metalworking industries are actively interested in cold extrusion.

For some companies, the relatively new process is passing from the experimental stage into that of full commercial production. We are bound to hear more and more about cold extrusion.

\* \* \*

**FOREMAN'S INCENTIVES:** In recent years almost every move in the relations between employer and employee has increased the importance of the jobs of the men and women who stand between employers and employees—the supervisors. Far too little attention has been devoted by management to problems relating to supervisors.

Today it goes without saying that top management must back up foremen and other supervisors more intelligently than in the past. Also, it is becoming evident (p. 46) that there are abundant opportunities to compensate supervisory work on a more constructive basis. In the past it has been customary to think of wage incentives as something that would be attractive to productive employees only. More recently, management consultants are finding that wage incentives can be applied to supervisory personnel with attractive results. It may be advisable for you to look into supervisory incentives.

\* \* \*

**TOO MUCH OVERTIME:** In certain industries where operations have been maintained at near-capacity levels for an extended period, the prospect of a moderate easing in demand actually is welcomed by management and employees alike. Much of the relief that comes from operating at a little less than capacity (p. 53) is due to the sharp reduction in overtime.

In past years when negotiators were arguing the merits of time-and-one-half and double-time for hours worked per week in excess of 40, few realized the extent to which then unforeseen circumstances would tempt or compel management to authorize a terrific volume of work at these premium rates. The result has been fan-

tastic. The unduly high costs have plagued management. The high rates of income enjoyed by employees by virtue of frequent overtime pay in many cases has promoted absenteeism.

All-in-all, too much overtime is bad for employer, employee and customer. A reasonable relief from it is overdue and welcome.

\* \* \*

**FOR NONINTEGRATEDS:** Recent expansion in the steel industry has been interesting in that it has involved smaller units rather than giants. Pittsburgh Steel's formal opening of its new hot mill at Allenport, Pa., last Friday (p. 38) marked its entry into the flat-rolled steel market after a long period of concentration on tubes and wire products. A few weeks ago McLouth Steel in Detroit announced an expansion program that will give motordom a substantially greater tonnage of automotive steel at its doorstep.

Also, not long ago, a new electric furnace steel producer began operations in Kentucky. This Green River activity is interesting in that it is the most recent effort to establish a profitable nonintegrated steelworks operation.

No one can predict what the future will bring, but one of the best things that could happen to the United States would be the revival of opportunity for nonintegrated steel outfits to make good.

\* \* \*

**REDUCING FIRE RISKS:** In spite of everything that has been taught us in regard to fire prevention, the loss from fire suffered by American industry continues to mount. In view of the great amount of fire-prevention activity that is in evidence almost everywhere, one must conclude that the rising toll of fires must be due to a rather surprising apathy on the part of managers of metalworking establishments who assume that "fire always happens to the other guy."

As a matter of fact, the risk of fire in industrial plants (p. 36) can be reduced appreciably by the introduction of the right type of alarm and extinguisher systems. When a manufacturer studies his fire problem realistically, he finds that his investment in adequate fire protection yields two immediate benefits. First, his insurance rate plummets downward. Secondly, his risk of a devastating fire is reduced drastically.

# It's the **BUSIEST** machine in the shop!

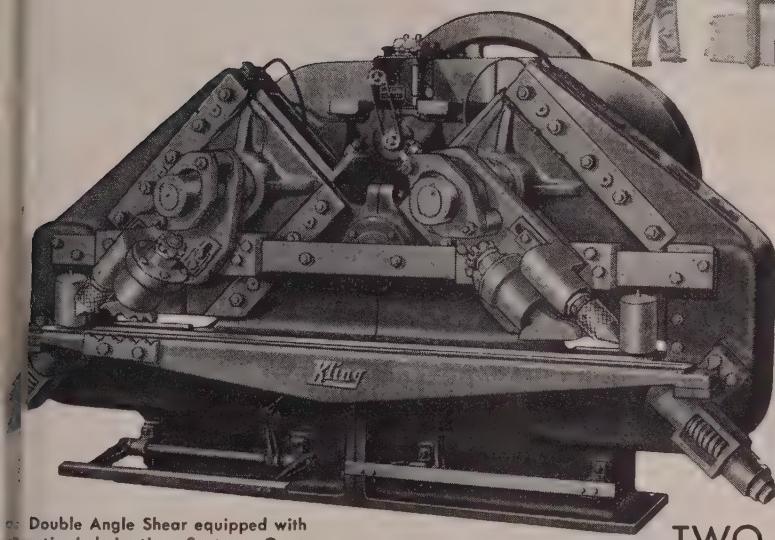
...gives more cuts per day on **FLATS**

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Double Angle Shear equipped with Automatic Lubrication System, Gear Trains and Automatic Hold-downs.

**TWO shears in ONE machine!**

You're using obsolete, slow-poke methods of shearing? The Kling Double Angle Shear can help you save time and money. This modern compact machine is designed for high speed, high production shearing on long and short run jobs. Many metal fabricating firms and steel warehouses have found the Kling Shear to be the workhorse of the shop. For instance, one machine will shear round bars and bar angles on the left while the right side can be used for structural angles and flat bars. The machine is built with the speed and power to handle the bulk of your shearing requirements. For shops with considerable mitre shearing

work, Kling Double Angle Shears can be mounted on a turntable to facilitate handling. Automatic hold downs and one-shot lubrication can be furnished when desired. Sizes to handle angles up to 8" x 8" x 1½".

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Find out how this high-production machine, available in four sizes, can give you more cuts, cleaner cuts on your shearing operations. Write for more information and latest bulletin. Kling Bros. Engineering Works, 1324 North Kostner Avenue, Chicago 51, Illinois.

SEND FOR NEW BULLETIN 2345.

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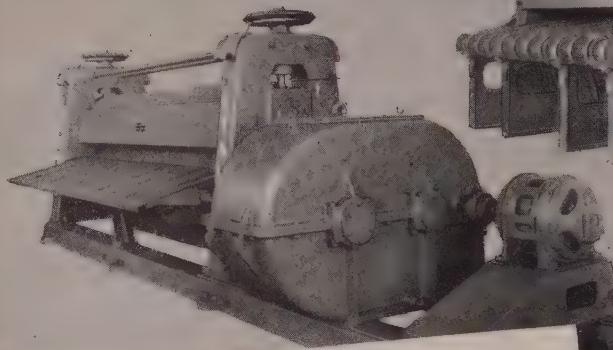
Punches



Plate Bending Rolls

**...an investment in speed!**

Stamco #6 standard 12 ga. x 144"



#8 corrugator 8 ga. x 168"



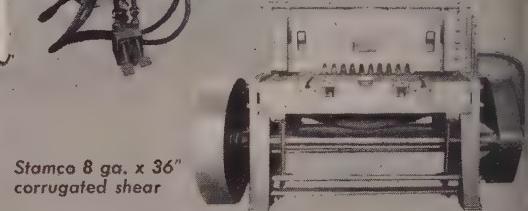
For Roll Corrugating and Culvert forming...see

# Stamco



Stamco high duty Culvert Punch and Riveter equipped with air operated friction clutch

Stamco 8 ga. x 36" corrugated shear



Stamco standard Culvert Punch and Riveter



**STAMCO, Inc., New Bremen, Ohio**

## Depreciation Reform: What Industry Wants

"ONE REASON WHY reform in depreciation tax laws is coming so slowly is that congressmen aren't sure what businessmen want."

That complaint by one Washington official is becoming less valid, judging from returns to a STEEL questionnaire on depreciation matters by 1850 users of capital equipment. The overwhelming majority of the respondents want freedom to pick their own tax write-off schedules, and they say that the average time they'll take will be ten years.

**Two Decades Now**—The average write-off permitted under present Internal Revenue Bureau rules is 20 years. Respondents to STEEL's survey were virtually unanimous in wanting those rules changed, as were the 31 witnesses who appeared July 22 and 23 at hearings on the subject held by the House Ways & Means Committee.

J. Craig Smith, president of Avondale Mills and vice president of American Cotton Manufacturers Institute, reflected the opinion of many of the witnesses, who were mostly trade association executives, when he urged that industry be granted "flexible and elective" depreciation rates on their equip-

ment. Under the ACMI plan, the only restrictions would be minimum limits of two years for short-lived property such as automobiles, five years for machinery and ten years for buildings. No maximum limits were set. George Terborgh, research director for Machinery & Allied Products Institute, also urged greater freedom. MAPI wants industry to be allowed a complete write-off in two-thirds the estimated life of industrial plant and equipment.

**Target for 1954**—The mounting evidence of increased unanimity about reform augurs well for legislative and administrative action from Washington—but next year, not this. Sen. Homer Capehart (Rep., Ind.) has a bill in the Senate to allow universal five-year amortization, but he concedes that it has little chance this session. The House committee was holding hearings on depreciation last week to help it frame its own measure, which won't be introduced until next year.

The Eisenhower staff agrees that reforms are due in administering depreciation tax laws. Treasury officials are studying what can be

**FORMERLY**, the U. S. wouldn't act and industry couldn't agree on what it wanted.

**NOW**, much of industry says it wants freedom to pick its own schedules—to average 10 years.

**NOW**, the Eisenhower administration says it will push for reform, but there are still some snags.

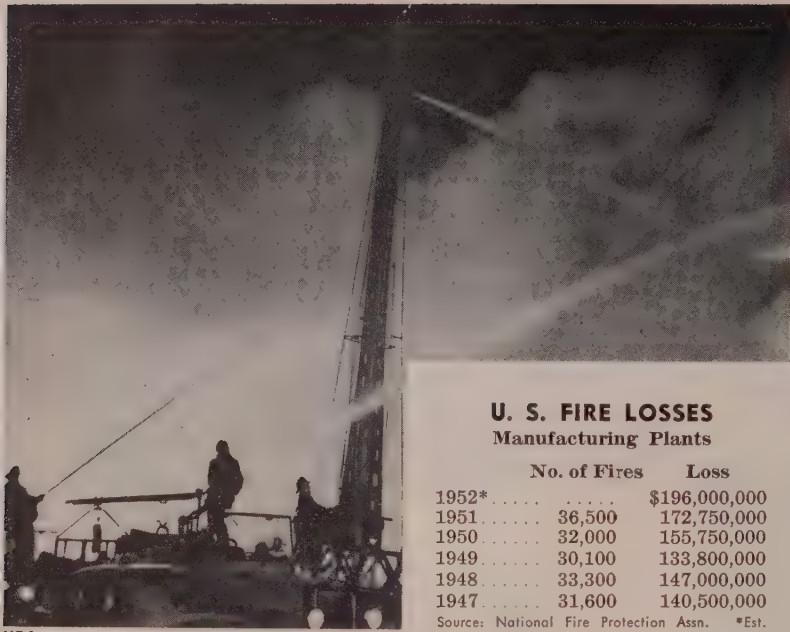
done about those and other tricky tax situations. They probably won't be ready with recommendations until next year.

**Help Already**—Aid on depreciation problems has come already from Washington. A policy inaugurated early this month says that depreciation deductions claimed by taxpayers shall not be challenged by bureau officials unless there is "clear and convincing" need for doing so.

A thorough-going reform by the Republicans of depreciation tax laws will require high political courage. That's because a change-over would mean a drop in tax income in the early years, although in the long run the shift would mean no loss in revenues to the government, perhaps even gains.

**Awkward**—Yet the drop in federal incomes in the first year as the result of the shift could be as high as \$1 billion.

On the other hand, many tax experts say depreciation reform will have beneficial results politically, too. It will help assure prosperity—and votes—by stimulating businessmen to continue to spend for new plant and equipment.



NEA

### U. S. FIRE LOSSES

#### Manufacturing Plants

	No. of Fires	Loss
1952*	.....	\$196,000,000
1951	36,500	172,750,000
1950	32,000	155,750,000
1949	30,100	133,800,000
1948	33,300	147,000,000
1947	31,600	140,500,000

Source: National Fire Protection Assn. \*Est.

## Protect Your Plant Against Fire

Last year, an estimated \$196 million worth of American industry went up in smoke. Increased use of fire-fighting equipment could reduce the loss

DON'T LET FIRE put you out of business; it can be avoided. Even with such a warning, Cardox Corp., Chicago, says chances are three to one against your staying in business if you have a fire in your plant this year.

The best way to avoid such an eventuality is to prevent fires if possible or minimize the effects of conflagration if it occurs. With sales of fire alarm and fire-fighting equipment hitting new highs, it would appear that businessmen are becoming more aware of the dangers of fire. Yet the fire-loss figures continue to rise.

**Daydreamers** — Insurance companies and manufacturers of fire alarms and fire-fighting equipment declare that the damage could be reduced drastically with the installation and intelligent use of alarms and extinguishers. They report that one of the hardest things to overcome in such a campaign is the apathy of the manufacturer who says the fire always happens to the other guy.

Cost is another stumbling block. Many businessmen feel they can

cut cost corners with fire protection because their plants are "fire-proofed" or for other reasons. But there are few capital investments which will pay for themselves directly as quickly as fire equipment. One company reports that it installed a sprinkler system costing about \$34,000. Insurance rate before installation was \$2.50; after installation it was \$0.52. The annual savings paid for the system in 4½ years.

**To Each His Own** — Not all systems will cost that much. Each plant has its own hazards, and each fire protection plan should be engineered to those hazards. Most insurance companies recommend that every plant should have the basic protection of a water sprinkler system. But where electrical equipment, quenching tanks, paint storage and the like are used, special equipment is needed.

Such protection can be obtained by selective placement of the correct type of portable extinguishers, which are gaining in popularity for all purposes, according to Roy C. Elder, sales promotion manager,

Fyr-Fyter Co., Dayton, O. The most common portable is the soda-ash extinguisher, used for the most common fires, Class A (wood, textiles, rubbish, etc.). Other extinguishing agents in general use for this type fire are foam, water-base solution and antifreeze solution. These generally are not suitable for Class B fires (gasoline, oil, greases, etc.) and Class C fires (electrical). Vaporizing liquid, carbon dioxide and dry chemical work best on the latter two classes.

**Several Methods** — Stationary systems are commonly used for Class B and Class C fires. For instance, Cardox makes a low-pressure carbon dioxide system which is widely used by metalworking firms around quenching tanks and electrical apparatus. The system is actuated by a bimetallic thermostat set at a predetermined temperature.

Other fire systems operate by smoke detection, fusible link, atmospheric pressure, greater-than-normal rise of temperature or manually. Some manufacturers make high-pressure systems, each designed to do a particular job.

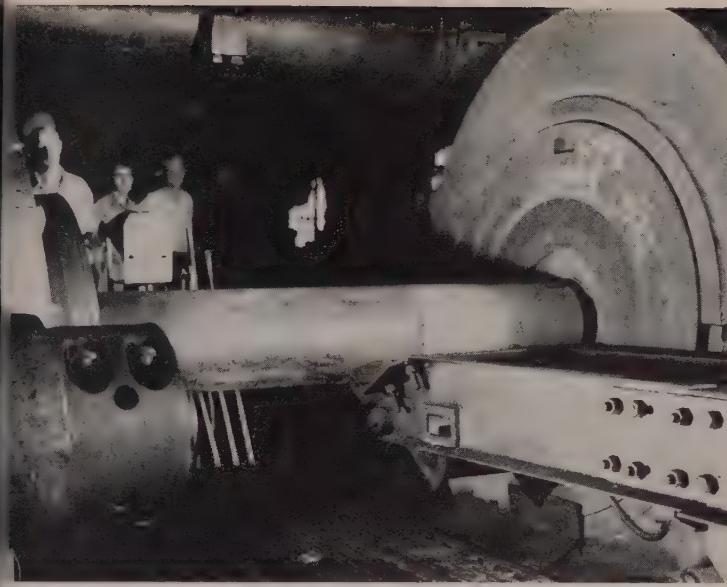
But these protective measures cannot do the job if they are not used intelligently. Fire-fighting methods should be employed at the earliest possible moment. Once a blaze is out of control, the best extinguishing system is of little use.

**Checklist** — Five simple cautions will help you get the most out of your extinguishers, whether they are portable or stationary:

1. Train personnel how to use them properly.
2. Make them readily available.
3. Be sure they are "engineered" for the particular hazard.
4. Label them clearly.
5. Recharge or inspect them at proper intervals.

### Furniture Makers Protest

With the nickel plating industry operating at only 60 to 65 per cent of capacity, the Chrome Furniture Advisory Committee will request the National Production Authority to relax its control of the metal. NPA officials said that a review of the situation in the nickel plating industry is in progress.



Number of independent aluminum extruders grows as . . .

## Extrusions Squeeze Into New Fields

PENDENT aluminum extruders represent tangible evidence of a growing trend toward aluminum extrusions. There are 50 to 65 such independent and relatively small job shops or five or six very large producers, including the primary aluminum suppliers, and a few captive division presses. At the end of World War II, there were only a half dozen independent jobbers. They account for a good part of aluminum extrusion output.

**Hard and Soft**—Together, the industry extruded about 347,600,000 pounds of aluminum shapes, tubes and tubing in 1952, up 90 million pounds from 1950 and 170 million pounds from 1948. Even more important than that increase is the breakdown between output of hard alloy and soft alloy extrusions. Civilian producers generally use soft alloys, such as 63S, with hard and anodizing, and military applications are usually made of hard alloys, such as 75S, and are heat treated. The following breakdown would roughly denote the part of extrusion output going to each of these two markets.

In 1952, soft alloy output of aluminum extruded shapes and tubes was 255,850,000 pounds against hard alloy production of about 91,000 pounds. Dollarwise the

break is nearer even, since hard alloys are more difficult to work and thus are more expensive.

But, tonnagewise civilian uses of aluminum extrusions outweigh military aircraft uses by far. And this is the field in which jobbing extrusion shops have sprouted.

**Well Off**—How are they doing? W. L. Bonnell, vice president-general manager of Trimedge Inc., Youngstown, O., extrusion independent, says: "We're doing very well and the outlook is for more of the same. We now have six presses in operation and are adding a seventh."

Independent extruders were given a lease on life with development of direct pumping extrusion presses reducing the initial cost considerably from the \$300,000 to \$400,000 required to install presses with accumulator systems. Then came the job of selling extrusions to the building industries for screen doors, windows and trim which are still the backbone of civilian aluminum extrusion sales.

**More Markets**—Success and experience in this field led to many others, however, until now civilian markets include furniture, truck bodies and trailers, irrigation pipe and appliances. Footholds have been gained in the automotive industry where Nash uses aluminum extrusions in car doors (see "Mir-

rors of Motordom," June 15, p. 63) and a multitude of other products.

Choke point for aluminum extruders has been supply of aluminum billets but even this check promises to ease in the near future. Primary aluminum production in May set a record of 210,953,111 pounds and expansions in the industry are already 75 per cent complete.

When that time comes, you can look for independent extruders to push into new applications for civilian aluminum extrusions. You'll see more independent extruders too.

## GE's Sales Scale New Peak

General Electric Co.'s sales of \$1,560,448,000 during the first six months of 1953 were a record total for the period and an increase of 33 per cent over the same months last year.

The earnings were \$75,417,000, a gain of 32 per cent over the same period a year ago. Increased costs caused the difference in percentages and the disparity is brought out clearly by the earnings per dollar of sales, which were only 4.8 cents in the first half, 0.1 cent less than the sum earned in January-June, 1952.

On its earnings G E will pay federal taxes and renegotiation claims of \$195 million.

G E president, Ralph J. Cordiner, attributed the rise in sales volume to the increase in the heavy apparatus business, the marked improvement in sales of consumer goods and the further increase in the output of defense products.

## Allegheny Sets Sales Record

Allegheny Ludlum Steel Corp. reports record sales for the first six months of the year, totaling \$134,319,368. This compares with a previous record high established in the first six months of 1951 of \$116,666,494.

Sales for the second quarter of 1953, amounting to \$65,632,845, fell slightly below the first quarter sales; earnings, however, were slightly higher. Second quarter net earnings amounted to \$2,163,275, or \$1.25 per share of common stock after deductions of preferred dividends.

## Pittsburgh Steel Starts Hot Mill

**By entering the sheet-strip field, the company expects to balance its production and put itself in a better earning position. Output will reach 600,000 tons a year**

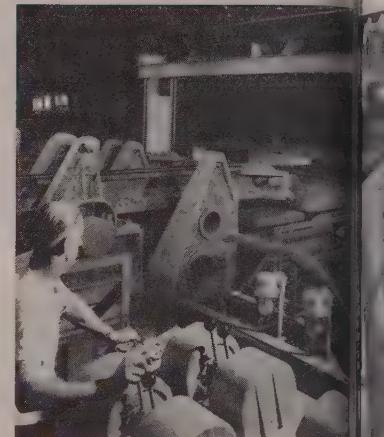
PITTSBURGH STEEL CO. officially entered the sheet-strip steel field with the formal opening of its new \$28-million Allenport, Pa., hot mill last Friday, July 24. The action brought it one step closer to completion of its \$62.8-million expansion, begun in 1950.

By entering the new market, the company will balance and diversify its production and increase its earning potential. Current monthly production is below maximum rated capacity, but with completion of the cold-rolling mill adjacent to the hot mill, total sheet and strip production will build up to 600,000 tons a year.

**Football, Anyone?** — The hot mill, manufactured by United Engineering & Foundry Co., Pittsburgh, is housed in new facilities covering 350,000 square feet, larger

than seven football fields. It takes a red-hot slab 5 inches thick, 5 feet wide and 20 feet long and reduces it to a sheet about  $1/16$  inch thick and about  $\frac{1}{4}$  mile long. Mill speed is 1770 feet per minute, or nearly 20 miles per hour, with four finishing stands at present. Provisions have been made to accommodate two additional finishing stands in the future which will raise the speed to 2230 feet per minute.

In addition to the mill itself, the new installation includes a 500-foot continuous pickle line, a temper mill and shear line. Cleveland Crane & Engineering Co., Wickliffe, O., produced 14 new overhead cranes to handle the steel. The plant and its auxiliaries will use enough electricity to supply the domestic needs of a city of 200,000 persons. Daily water consumption



Charging steel slabs into the furnace

would keep a city of 300,000 persons supplied. About 3500 tons of reinforcing steel and nearly 5 tons of structurals were used building frameworks.

**Long on Ingots** — Prior to current expansion program, Pittsburgh Steel produced more ingots than its finishing facilities could use. Therefore, it relied on the overcapacity steel market to take up extra. With the new and projec-

### COPPER EXPANSION

## Anaconda's Raritan Expansion Completed

**Two new furnaces will enable copper works to produce larger cakes for fabricating at American Brass. Plant could produce 50 million pounds of refined copper a month**

EXPANSION of Anaconda Copper Mining Co. took another step forward this month as production began at the new copper casting plant at Raritan Copper Works of International Smelting & Refining Co., Perth Amboy, N. J. International is a subsidiary of the copper company.

Two new furnaces at Raritan will produce copper cakes or slabs weighing from 1800 to 3000 pounds as compared to cakes of 840 pounds before the expansion. Officials of Anaconda say the increased size results from the desire of another subsidiary, American Brass Co., to roll longer coils of sheet to meet customer demand. Longer coils, in turn, result in more economical

operation by those customers because of less setup time and a minimum of scrap.

**Oil Fired** — The two oil-fired furnaces, which produce electrolytic copper cakes of 99.95 per cent plus copper content, will supplement the copper works' three anode furnaces, three refining furnaces and four billet furnaces for casting. When copper is available, Raritan can turn out 50 million pounds of refined copper castings a month, a substantial portion of which will be produced in the new furnaces.

The building housing the installation is 310 feet long and 150 feet wide. Its two smokestacks, which rise 150 feet, are equipped with Hagan combustion controls



Inspecting new mold cavity at Raritan

to control the composition of gases. The new plant was built May 1, 1951.

**Wedgies** — Heretofore, heavy per cake production at Raritan confined largely to wedge-shaped cakes which were not only small for the purpose but hard to handle. For the new



...ing the sheet at the delivery end

cities, the company will use all its ingots. Avery C. Adams, president, says his company expects "to up our participation in the enormous market for sheet and to about 3 per cent." Pittsburgh supplies about 10 to 12 per cent of the seamless tubular products market and over 7 per cent the wire product market. Pittsburgh's expansion has a bold aim: 1. Increase blast fur-

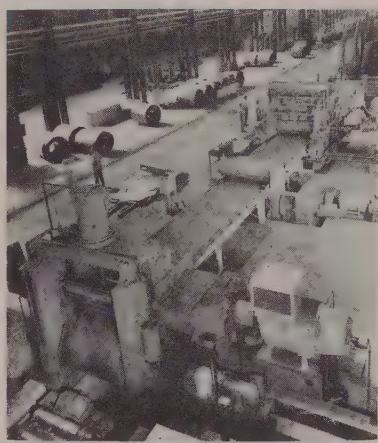


GE motors keep runout table running

nace capacity by 12 per cent; 2. increase open-hearth capacity by 50 per cent; 3. construct five new soaking pits and install a new 66-inch high-lift blooming-slabbing mill; and 4. increase finishing facilities by 82 per cent.

### Pittsburgh Steel Income Up

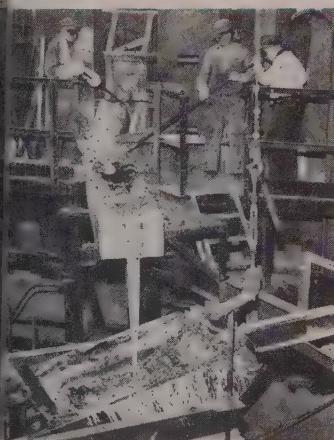
Pittsburgh Steel Co. reports a consolidated net income for the



Reliance 350-hp motor drives uncoiler

first six months of 1953 of \$3,826,612, equal to \$2.58 per share of common stock.

Net income for the period was 467 per cent higher than that for the same period last year when the company cut back operations in the first quarter to expedite its expansion program and when it was shut down by the industry-wide United Steelworkers' strike in the second quarter.



Industrial pyrometer checks temperature

molds were developed for parallel-sided cakes 65 to 76 inches long, 5 inches thick and from 15½ to 24¾ inches wide, similar to slabs used in steel mills. A new cut shaper with a 90-inch wheel had to be built for the operation. There are 12 molds on the cast-



Copper cake, weighing from 1800 to 3000 pounds, moves into saw automatically

ing wheel and one copper cake is taken off the wheel while another is being poured.

Tied in closely with the expansion and modernization at the Raritan Copper Works is the program of improvements throughout the Anaconda organization. Included are new facilities for processing

sulphide ore at the Anaconda mines in Chile, improvements in mining operations in Butte, Mont., a new mine at Yerington, Nev., a new aluminum reduction plant at Columbia Falls, Mont., and modernizing and improving fabricating units for making of brass and wire and cable.

## Yolo: Mystery in Steel

Still nebulous is the status of the proposed \$136.6-million steel mill

NEW MYSTERY surrounds the nebulous Yolo Steel & Metal Co., Sacramento, Calif., with the granting by the Office of Defense Mobilization of a certificate of necessity to the firm for the construction of an \$11-million electrolytic tin plate mill.

The agency approved 40 per cent of the cost of the project as eligible for rapid tax amortization.

**Paper Plant?**—With the granting of this certificate, Yolo Steel & Metal on paper became a \$136,555,000 enterprise. It already holds a certificate for a \$44.3-million blast furnace, coke ovens and auxiliary facilities and another one for \$81.3 million for steelmaking works and a rolling mill.

This has been going on since 1950, but so far as can be learned not one shovelful of earth has been turned in preparation for the building of this huge enterprise.

**Site Secret, Too** — Gideon I. Dumond, head of the company, more than a year ago told STEEL that he hoped to select a site "within a few weeks" for the blast furnace. He said several sites were under consideration at that time in the vicinity of Yolo on the Sacramento river.

But, as of now, no evidence is available to indicate that a plant site has been acquired. The company is understood to have kept its earlier certificates valid by applying for extensions.

**Hush, Hush On Money**—One of the most puzzling aspects concerning the company is the matter of financing. Mr. Dumond in his year-ago interview with STEEL said he was not at liberty to discuss the financial backing. He did deny, however, that there was any foreign capital involved.

Perhaps the question of financing is the reason the company has not gone ahead with the construction of the integrated steel plant, although there are considerable doubts among steel experts in San Francisco and the West that there are adequate, easily accessible raw material reserves in the area to support such a huge project.



United Press

### Having Wonderful Time—On the Line

To learn about opportunities available in industry for young men and women, West Virginia school teachers Mr. and Mrs. Lewis Traugh went to work for the summer at Chrysler Corp. in Detroit. The summer jobs with pay, a feature of a credit course they are taking at Detroit's Wayne University, also include daily conferences on industrial management with Chrysler executives.

## Magnesium Output To Hit Peak at Dow Plants

MAGNESIUM production at two plants operated on the Texas Gulf Coast by the Dow Chemical Co. this year will reach 140 million pounds, the biggest output since the peak wartime year of 1943.

Dow officials have predicted the production record at its Freeport and Velasco plants, the latter being operated for the federal government under lease. It produces magnesium for the government's stockpiling program and for the Defense department's armament program.

**Almost All**—Production at the two plants will amount to virtually the national output of the light metal, according to W. J. Rave, magnesium production manager for Dow's Texas division at Freeport.

With the exception of the Velasco plant, the government has shut down all its magnesium plants. It had been operating six while a seventh was not reactivated during the Korean emergency.

**Little Captive**—A small amount of magnesium is produced at Henderson, Nev., for use on a captive

basis in the production of titanium.

Mr. Rave's figures show that in 1943 four plants in the Southwest produced a total of 151,367,000 pounds of magnesium. The four plants included the two Dow operates, and the International Minerals & Chemicals Corp. at Austin, Tex., and the Mathieson Alkali Works at Lake Charles, La. The latter two halted production after 1944.

### Mangaslag Plant About Ready

Partial operation by early September of the new \$2-million pilot plant of Mangaslag Inc., Duryea, Pa., is predicted by a spokesman for the Southwestern Engineering Co. which is in charge of construction.

The plant will engage in the extraction of manganese and three other by-products from steel slag. Anthracite coal will be used in the process and slag will come from the Bethlehem plant of the Bethlehem Steel Co. An estimated 250 to 300 tons of anthracite and 400 tons of slag will be used daily.

## Accent on Business

**Commerce department will emphasize services to business, reversing trend of last 20 years**

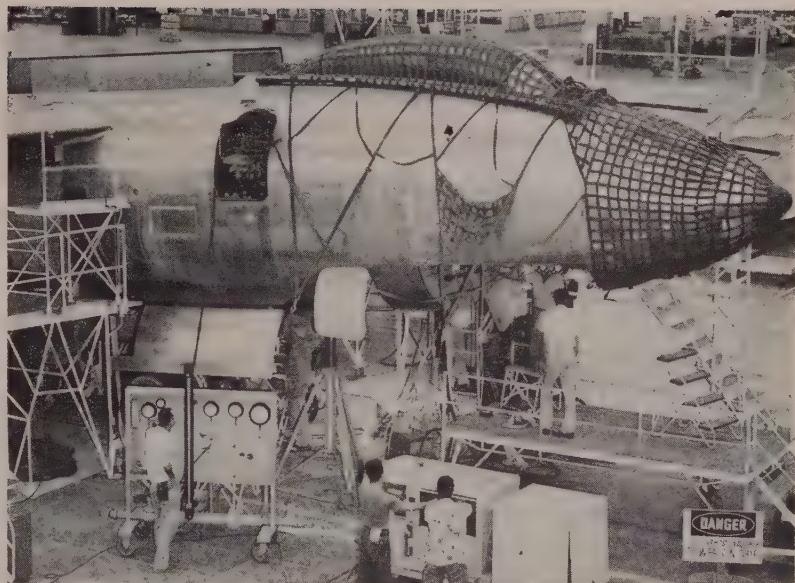
**EXPENDITURES** by the Commerce department for services to business and for representation of the business viewpoint in government was less in fiscal 1953 than what was spent for such purposes during the mid 1920s, when Herbert Hoover was secretary of commerce.

So says James C. Worthy, assistant secretary of commerce for administration.

**Drifting Department** — How far the Commerce department has drifted from its role of service to business as a whole can be seen in the fact that appropriations for the Civil Aeronautics Administration (\$151.2 million), the Maritime Administration (\$98.8 million) and Bureau of Public Roads (\$501.5 million) account for \$751.5 million of the total Commerce appropriation of \$824.3 million. There are only two units in the Commerce department which deal directly with the business appropriation: Office of the Secretary and the Bureau of Foreign & Domestic Commerce. In Mr. Hoover's last budget as secretary of commerce these offices got an appropriation of \$7 million; presently they operate on a \$6,050,000 budget, not adjusting for inflation.

This is due to change as the Commerce department readies its Business Service Administration and its Office of Distribution. "Under direction of Secretary of Commerce Weeks, the department is dedicated to maintaining a sound, vigorous, expanding economy," says Mr. Worthy. Problems of distribution are to get special attention. And most important, perhaps, the vast amount of statistics and data of the department are to be made more generally available not only to business researchers but to marketing and sales departments of private firms.

**More Service, Less Cost** — One way that will be done without increasing the expenses of the department is the co-operative office program whereby 700 chambers of commerce and similar organiza-



### Aircraft Muzzled for Workers' Protection

No dog-days' gag is this, but a nylon muzzle to protect workers during pressurization tests on B-47 Stratojet bombers. At Lockheed Aircraft Corp.'s Marietta, Ga., plant, it prevents a defective door or window from popping out when pressure in the plane is run up to 6.55 pounds per square inch

tions will set up distribution points. These offices "will not only transmit information to businessmen but will transmit what the businessman wants Washington officials to know about his own particular problems."

One of the major difficulties in redirecting the department is the maze of governmental red tape. Where the industrial manager can for the most part layoff the least efficient and productive worker, retention credits of Civil Service regulations determine layoffs largely on the basis of seniority, type of appointment and whether or not the employee is a veteran.

"A problem in reducing forces has features not only of irony but overtones of comic opera," says Mr. Worthy. "We have a situation where we want to make a further reduction in force of about 200 people in one of our constituent units, but we can't lay them off because we don't have enough money to pay their accumulated annual leave."

"So we are now forced to keep them on the payroll, doing work we've already decided to eliminate in the interest of economy, waiting until our appropriation bill is passed so we'll have the money to release them."

## DMS Fourth-Quarter Allotments Announced

**FOURTH-QUARTER** allotments of steel, copper and copper base alloys and aluminum for direct defense programs have been announced by the Office of Defense Mobilization.

These allotments are the second under the Defense Materials Sys-

tem and meet the Defense department and Atomic Energy program requirements in full. Under DMS, allotments are limited to those two programs and do not control civilian uses of the three metals.

The allotments as announced by ODM are:

	3rd Quarter 1953	4th Quarter 1953
Steel	2,279,592 tons	1,837,803 tons
Copper & Copper Base Alloy Products	243,692,000 lb	217,497,000 lb
Aluminum	223,956,000 lb	203,595,000 lb

# Windows of Washington

By E. C. KREUTZBERG Washington Editor

## Defense contractors look to Congress for revisions in existing contract termination procedures. Needed are bases for positive remedial action by contractors

FEARS are growing among defense contractors that they're in for trouble in contract terminations on defense contracts unless the present procedures are revised and clarified.

The matter is already on some contractors' doorsteps as the Air Force (STEEL, Mar. 9, p. 70) and the Army procurement agencies have published their implementing regulations. The Navy also is completing a manual detailing its termination policies.

**Different Definitions**—In general, the common law measure of damages is the amount the contractor has expended to the date of termination, minus the value of materials on hand, plus the profit which the contractor would realize by performing the whole contract. That formula isn't followed under Section VIII of the Armed Services Procurement Regulation covering contract termination. Section VIII of ASPR states: "The primary objective in negotiating a settlement is to agree on an amount to compensate the contractor fairly and fully for the work done and the preparations made for the terminated portion of the contract, with such allowance for profit thereon as is reasonable under the circumstances."

Specific objections to ASPR VIII are: The hazard that the comptroller general might upset termination agreements with possible long delays and disallowance of important costs; lack of statutory authority to the contractor to act as the government's agent in disposing of surplus property, thus preventing the contractor from speedily converting his plant to normal peacetime uses; lack of authority to contractors to settle contractors' claims and, finally, failure to allow certain costs—notably the interest a contractor pays on capital borrowed to finance execution of the contract.

**Positive Action**—One of the best analyses of the subject is that of

E. K. Gubin, Washington administration law specialist, in the May issue of *Federal Bar Journal*, Washington. He recommends corrective changes in the present law to permit quick disposal of termination inventory, positive procedure in settling subcontractors' claims, finality of settlements by removal of the comptroller general's authority and freedom to the contracting officers to make partial payments to contractors in order to give them necessary interim financing assistance.

## New Laws . . .

New laws signed by President Eisenhower on July 18 include:

Public Law 130, 83rd Congress, continues until July 1, 1954, or six months after the end of the present national emergency — whichever comes first—the government's authority to expand and maintain productive capacity in government-owned and privately-owned plants, and to store machine tools and other production equipment.

Public Law 118 authorizes extension of the mutual security program through the present fiscal year.

Public Law 125 extends until Dec. 31, 1953, the effective period of the excess-profits tax.

## Scientist, Engineer Roster . . .

Rosters of scientists and engineers in the United States now are being prepared under a National Science Foundation program with the aid of ten scientific and technical societies. Up-to-date information on about 100,000 scientists and engineers is expected to be on hand by June, 1954.

## Equal Tax Payments . . .

H. R. 6306, introduced by Chairman Daniel Reed (Rep., N. Y.), Ways & Means Committee, would restore to corporations the privi-



United Press

## Baby of the Pack

Smallest submarine built for the Navy since 1910 was launched at Groton, Conn., July 17. The 250-ton, 131-foot vessel, designated the SST-1, will be used for training purposes

ledge of paying income taxes in four equal installments instead of the four unequal payments required by present law.

## Census Money O.K.'d . . .

House-Senate conferees agreed to give the Census Bureau \$1.5 million for business, manufacturing and agricultural censuses in the current fiscal year.

## Stock Exemptions Extended . . .

The Renegotiation Board has extended the exemption of stock items until Dec. 31, 1953.

The policy will remain unchanged under which the board does not renegotiate subcontracts for items which are placed in a purchaser's stock, and are not specially purchased for use in performing renegotiable contracts. But the board will continue to scrutinize contractors' filings to make sure that the exemption will be applied only according to its terms and not to sales not properly included in the category of sales for stock.

# KNOW WHAT YOU GET \*

# POCKET-GUIDE

**RX**

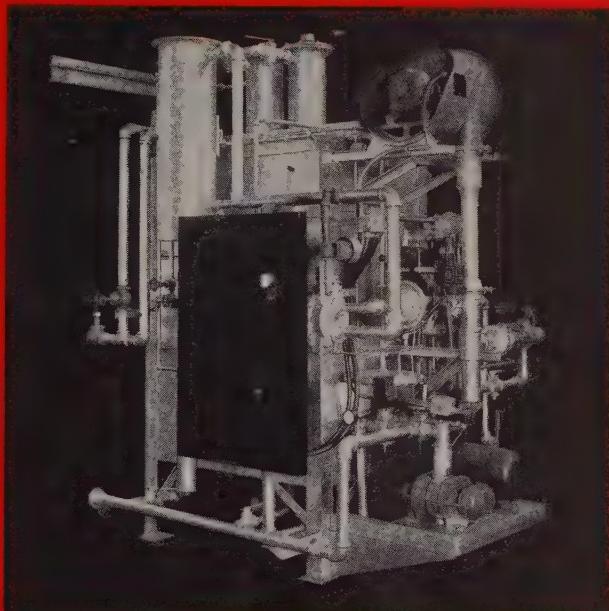
**DX**

**NX**

**HNX**

**AX**

**HX**



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	GAS	CAPAC. c.f./hr.	APPLICATIONS
<b>RX</b>	250 to 5600		carburizing, dry cyaniding, brazing, sintering, bright annealing, clean hardening, carbon restoration (skin recovery)
<b>DX</b> LEAN	250 to 35,000		bright annealing and sintering (copper)
<b>DX</b> RICH	250 to 35,000		bright annealing, brazing (low and medium carbon steel)
<b>NX</b>	2500 to 20,000		bright annealing (copper, carbon steel), clean hardening (medium carbon steel)
<b>HNX</b>	5000 to 20,000		extra bright annealing (copper, low carbon steel), clean annealing (stainless steel)
<b>AX</b>	100 to 4000		rapid de-oxidation of surface metal, brazing, sintering (low carbon steel), bright annealing (stainless)
<b>HX</b>	1000 to 15,000		rapid de-oxidation of surface metal (low carbon steel), bright annealing (stainless)

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# Watchword in Illinois: Foreign Trade

Growing interest in foreign trade led the University of Illinois and the Illinois Manufacturers Association to initiate their Institute on International Trade

FOREIGN TRADE has been a stepchild in American industry in many ways," said W. C. Staley, president, Baker Mfg. Co., Springfield, Ill., and vice president, Illinois Manufacturers Association, at the opening of the Illinois Institute on International Trade.

"Most of us have been so busy taking care of our domestic requirements that we have not given proper consideration to the development of foreign markets . . . and this is particularly true in the case of smaller firms," he continued.

**Clearly Urgent**—"I think I express the conviction of the great majority of industrialists who are informed on world affairs when I say that before very long the genuine importance to industry of finding new markets in foreign fields will be urgently clear. . . . know of no subject that is of more genuine importance to industry as well as to our economy generally."

The international trade institute, held July 12 through July 18, had a two-pronged purpose: keep top management informed on real developments in foreign markets and dissipate some misunderstandings on the complexities of foreign trade on such subjects as foreign exchange, languages, special packaging, credit terms and know-how in marketing foreign countries.

**Coming Soon**—Of the more than 900 members of the Illinois Manufacturers Association, a substantial number are now engaged in international trade, Mr. Staley said. A much larger proportion of the IMA membership contemplates expanding its activities to the foreign field.

## Roads Grow in South America

Extensive road-building programs now under way in many South American and African countries promise to revolutionize their

economies," reports Edward L. O'Neill, export manager of Trailmobile Inc., Cincinnati. Two factors caused these countries with retarded transport systems to invest in mammoth road-building programs instead of in railroads: Lack of private capital to build railroads; public highways can carry voters as well as commercial trucking cargoes.

## The Rub in Import Quotas

U. S. manufacturers exporting to South America are keeping one eye on the amendment to the Trade Agreements Act extension bill (H. R. 5894) which would impose a quota on imports of crude petroleum and residual fuel oil and set up special duties on lead and zinc imports. With the other eye, U. S. manufacturers are watching Venezuela, their third best customer in South America, for reactions. Venezuela gets 65 per

cent of its total revenue and 95 per cent of its foreign exchange from oil operations.

The rub: Venezuela bought \$507 million of American goods in 1952, 12 per cent more than in 1951. Construction machinery purchases amounted to \$41 million, up 242 per cent; metal manufacturers \$37.8 million, up 117 per cent; electrical machinery \$33.5 million, up 19 per cent.

## Fewer New Cars on the Road

New cars have never been harder to find since World War II in South Africa. Johannesburg motor traders predict the shortage will get worse before it gets better since there's no sign the South African government will allocate more money for motor car dealers.

South Africa is importing about 45,000 cars a year while the market could easily absorb 60,000.

## Extrusion Press for Turkey

Hydropress Inc., New York, has a contract for a 2400-ton hydraulic extrusion press and accumulator station for the government-owned brass plant in Ankara, Turkey.



## Rolling Along the American Way

White Motor Co., Cleveland, played host to a Norwegian team of transportation engineers in this country to study modern materials handling methods. Ten Norwegians, under the leadership of Kurt Jensen, inspector in the Norwegian government's inspection service, toured the White Motor factory, saw equipment like White's power-life cab model 3000



## Wage Incentives

### Can Work With Supervisors, Too

By M. K. SHEPPARD

Management Consultant  
M. K. Sheppard & Co.  
Cleveland

A 15 PER CENT improvement in operating performance—that's the record of a midwestern manufacturing company which installed incentive compensation for supervisors. Budget reports showed departmental and plant performance rose substantially when wage incentives were offered.

**Labor Incentives**—Industry has applied the incentive idea to direct factory employees with remarkable success. Too often industry has neglected incentives to key supervisory employees.

The best place to stimulate economies is with people responsible for daily expenditures. These are the foremen, department heads and executives who direct productive efforts of your company.

**Investment in Foremen**—How well are your foremen spending your money? Foremen are responsible for an approximate investment of \$3000 to \$20,000 for each employee's machine, plus \$3000 to \$5000 for wages and equally large sums for valuable material. The foreman with 25

to 50 employees in his department is responsible for the effective use of as much as \$1 million per year. It is sound business sense to provide supervisory incentives to get the most out of this investment.

Such incentives should compensate a supervisor for his accomplishment in *operating his department* whereas the wage earner is paid additional compensation for his individual increased effort. Never install a supervisory incentive plan as a method of paying more money automatically! Install supervisory incentive plans based primarily on compensating supervisors for performing a superior job of controlling costs.

**Establishing Norms**—First, management should set accurate standards for the three elements of manufacturing cost—material, labor and overhead expense. Standards for direct materials are based on engineering bills of materials and optimum quantities of scrap for each operation in the chain of manufacturing processes. Labor standards are set by motion

and time study for direct labor and budget standards through analyses of departmental indirect labor.

Services rendered to productive departments by such service departments as maintenance, tool rooms, materials handling and inspection are budgeted in two ways: 1. In proportion to the production schedule of the productive department; 2. on some equitable measure of the work done.

**Measurement**—Supervisors' accomplishments are gaged by ability to reach predetermined budgets for all the above expenditures for production. Proper cost standards should measure foreman performance, with extra compensation allowed for meeting or beating these predetermined budgets.

**Manager's Decision**—The plant manager in conjunction with division and head office representatives decides which supervisory positions in the plant are to be designated as participating positions. Included in this group are those whose managerial responsi-

ilities qualify them as key supervision personnel.

The Sheppard plan of supervisory incentives is designed round the company's monthly departmental budget reports. Incentive earnings accrue to participants in the operating department in any month in which the department saved money by operating with lower costs than allowed by the flexible budget.

**Budget Fund**—Company management usually authorizes from 10 per cent to 20 per cent of such savings to be set aside each month for distribution to participants in the plan. Some companies specify that a minimum return on capital

No participant in an operating department is eligible to receive payment from the plant co-operative fund in any month in which he does not receive "home" department payment. The amount due him from this fund is credited to his co-operative reserve. All individual reserve accounts are liquidated at the end of each year after necessary adjustments have been made for inventory corrections.

**In the Red**—If a supervisor has a deficit in his direct reserve account caused by losses in excess of gains during the year, or if the net of the two reserve accounts is in the red, no payments will be made to the participant and his balances will be canceled.

To assure participants that they will not be penalized for excessive expenses outside their control and that their efforts will be reflected in bonus earnings, allowances may be granted for unusual expenditure not provided for in the budget standards. This includes abnormal changes and alterations, extraordinary repairs and other non-recurring excessive expenses outside the control of local management. When granted, allowances of this nature are added to the budget of the department incurring the expense in accordance with current procedures.

**Extra Savings**—Allowances may be granted for reduction in standard budget allowance due to methods improvements suggested and developed within the plant. Savings in unit costs which result from such improvements will be computed monthly. They are considered an additional departmental saving for twelve months following the installation of the improved method.

Savings resulting from major changes in equipment or layout from new methods developed in other plants, or from other changes dictated by top management will not be allowed for incentive computation.

**No Limit**—We do not believe management should place a limit on incentive earnings. We believe that the ultimate achievement of the supervisory incentive plan will be about 10 per cent of budget—that is about the maximum saving that can be continually sustained

with properly established budgets.

The supervisory incentive plan is so designed that when this level of savings is reached throughout a plant, an average bonus of 15 to 30 per cent will be earned by all participants in that plant.

**Monthly Report**—In any sound supervisory incentive system it is essential to determine each month the actual dollar amounts of incentive earnings and losses for each participant. This is vital, for money earned is always the real incentive. Each participant receives a monthly statement showing the source of his incentive earnings or losses and the balance of his reserve fund.

We believe it is necessary that management set sound cost standards to measure supervisory performance. We believe that any supervisory incentive should be based on performing a superior job of controlling manufacturing costs.

**Twin Bases**—Incentive payments to supervision should be both home department awards based on individual department perform-

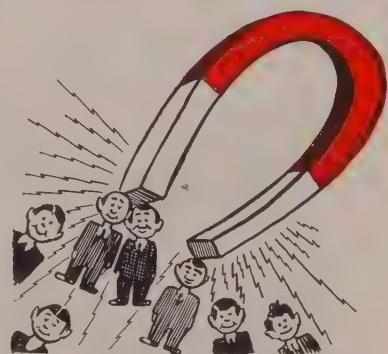


Foremen manage huge investments

vestment be made before any distributions are made.

Foremen and assistant foremen retain part of their own departmental earnings and contribute the balance to a plant co-operative fund in which they share. The plant manager and principal staff department heads receive extra compensation solely from the distribution of the plant co-operative fund. Participants in an operating department earn a partial award (75 per cent of maximum potential) by operating their "home" departments in the black even though other departments and the plant as a whole are in the red.

**Gains Are Required**—The plant manager and his staff do not earn incentives unless the plant has departmental gains greater than losses. We believe that interdepartmental co-operation as well as individual department performance must be rewarded to make the incentive plan fully effective.

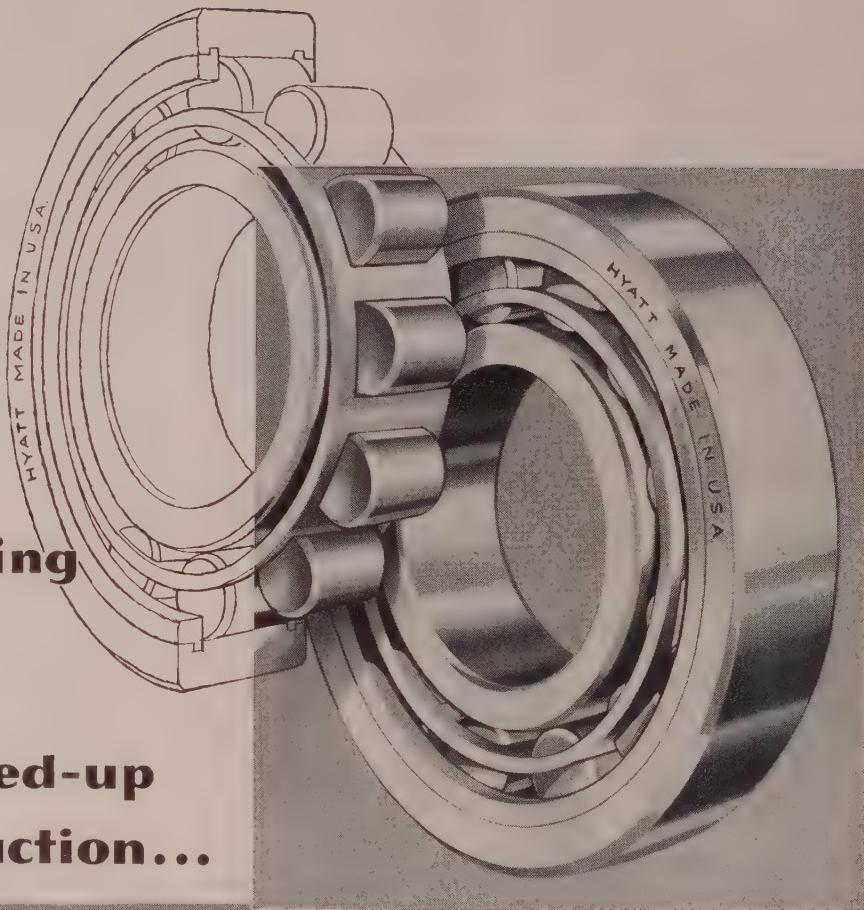
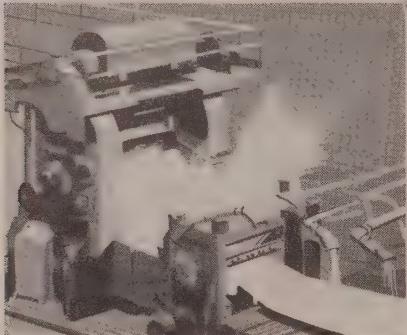


Incentives attract and hold talent

ance and co-operative awards based on plant operating cost performance. We believe it is essential that individual supervisors be paid monthly or notified of losses under the incentive system.

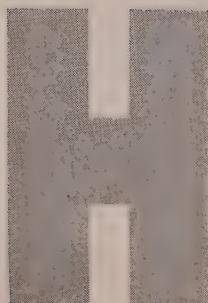
Any company installing supervisory incentives should employ competent cost engineers versed in the operation and maintenance of their system. Properly installed and maintained supervisory incentives can give that extra stimulus that makes department budgets profitable to both the company and its department heads.

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**HYATT ROLLER BEARINGS**

# Mirrors of Motordom

**Truckmakers see a return to more normal competitive conditions this year as they turn out some 1.1 million vehicles. Design changes aim to boost sales**

## DETROIT

RUCKING is big business. Motor trucks account for over 77 per cent of the total domestic freight tonnage hauled yearly. Over 6 million workers are truck drivers and there are presently nearly 10 million trucks in the United States, most of them on long winding hills.

**Big Business**—Supplying this industry is also big business. Detroit's truck-building chore is somewhat less glamorous than the passenger car stint to Harry Horsepower because of basic differences. Styling, the Detroit forte, moves to the background in truck design and such attributes as rapid ad moving, load carrying capacity, driver comfort, operating economy and durability take over. The truck fundamentally is a piece of equipment. The passenger car is a nebulous concoction of sociological implications.

Major producers like Chevrolet, Ford, GMC and Dodge sum all these factors up in ability of the equipment to do the job as economically as possible. Toward this end, Chevrolet, for example, offers 11 models on 11 wheelbases with hundreds of optional items. Literally thousands of trucks could be made with no two alike to do varying jobs required, and prescribing the proper truck for a given job a highly skilled undertaking. Variations in the specifications of a truck itself do much to give trucks a variety not enjoyed by passenger cars.

**Long Lead Time**—For this reason truck model changes need not assume the scope that passenger car changes do. A basic truck design will often run three to five years before major changes are made. Minor alterations may be made for identification, but with the lower volume output tooling costs prohibit major changes more frequently. Plastic dies ideally suited for low volume will prob-

ably find a ready market in truck production, may foster a trend toward greater annual changes than are now in vogue.

Also in contrast to the auto industry is the extensive truckmaker habit of putting new lines of trucks and engineering developments into production whenever they are ready rather than waiting for a year end fanfare. And deciding just what models to build is a honey of a problem in itself. If the customer had his way every truck would be a custom built job, declares one company.

**Solutions**—This problem of specialization versus mass production is met in two ways: 1. By offering a number of options on every chassis such as varying rear-end ratios, different tire sizes, etc., and 2. by supplying only a few standard bodies and letting body builders do the major job. Space in a truck plant just doesn't permit storing the bodies the customers would request.

Truckmakers are not lax in their efforts to make their equipment as desirable as possible, however. Truck drivers and owners are regularly polled on how they feel about the products, on the market and on design feature acceptance. Data are carefully analyzed in making changes. Unlike the passenger car owner who isn't quite sure why he prefers make "A" over make "B," the truck driver can come up with opinions that are definite, often constructive and invariably colorful.

**Help the Driver**—One trend is the demand of today's truck driver for comfort. In many instances the seats of a truck are better constructed to prevent driver fatigue than their automotive counterparts. Noise insulation and air circulation are continually getting better and as one executive put it, "The cab of the modern truck is so comfort-

## TRUCK PRODUCTION

United States and Canada



1942	1,106,153
1943	965,400
1944	972,000
1945	832,017
1946	1,021,963
1947	1,329,290
1948	1,465,291
1949	1,230,093
1950	1,449,650
1951	1,535,555
1952	1,367,012
<b>First six months</b>	
1953	708,499

Source: Ward's Automotive Reports

able we suggest that a radio be installed to keep the drive awake."

But that's just one trend in truck design advancement. Trucks, like passenger cars, will be going to the V-8 engine. The more compact powerplant permits designers to lower hoodlines and shorten the engine compartment to increase cargo space length. A horsepower race is just beginning in the truck industry and promises to eclipse that of the passenger cars in intensity. Greater power in a truck means more cargo revenue and greater speed on the road, reducing driver trip-time.

**Toward More Efficiency**—Cabs are steadily becoming wider, and

the trend is to continue. A trend toward lower centers of gravity could lead to step-down design in trucks of the not-too-distant future. Lowering the body and cab will also make trucks easier to load and to enter and leave. Vibration and noise levels will continue to be reduced. Power steering should become standard equipment on trucks in the next few years and automatic transmissions also seem headed for standard equipment listing.

Better brake cooling and widespread use of self-energizing brakes is in the offing. Truck design generally will become more compact with a shorter over-all length doing the same job a longer truck does today. Important in this move are regulations limiting the length of trucks from bumper to bumper and the need for maneuverability of trucks to cut down the time in backing into loading docks and to make moving through traffic easier.

**Boost the Market?**—Plenty of new things are ahead in the truck of tomorrow and these developments give the truckmakers confidence in what some industry prophets are regarding as a softening market. But truckmakers point out that they will have a 1.1-million-unit output this year and regard it as adequate. They point out, too, that with the passenger car demand of recent years some dealers have been forced to take a set number of trucks to get a given quantity of passenger cars. This has resulted in many cases of selling the trucks at cost to move them and obtain more passenger cars on which the profits are made.

Dealers who make their livelihood selling trucks exclusively have been hurt by the practice, but as passenger cars begin to ease off in demand, truckmakers see a return to more normal competition. With plenty of new developments ahead, competition is just what the truckmakers crave.

## Car of the Week

Commenting on the Plymouth Hy-Drive transmission Feb. 16, this column stated, "Don't figure on any traffic-light drag racing." After driving a Plymouth sedan equipped with the device, we be-

### Auto, Truck Output

U. S. and Canada

	1953	1952
January	612,815	424,559
February	623,793	464,577
March	752,474	525,024
April	782,453	570,464
May	685,390	542,559
June	713,206	542,478
July		226,134
August		322,755
September		595,715
October		656,767
November		548,782
December		569,715
Total	5,989,509	
Week Ended	1953	1952
June 20	169,031	129,353
June 27	173,702	124,370
July 4	140,491	86,052
July 11	167,560	70,592
July 18	178,381	32,468
July 25	179,000*	42,514

Sources: Ward's Automotive Reports  
\*Estimated by STEEL

lieve the comment still stands but with some modifications.

Acceleration from a standing start with the unit in high gear is not embarrassingly slow, but the sensation is somewhat like shoving your foot into a bucket of yoghurt. However the Plymouth has a secret weapon: Its conventional transmission behind the fluid coupling. When a really jazzy take-off is desired, going through the gears will get the car away in fine style. Even a drop into second gear gives a good send-off.

This setup has much to recommend it, offering as it does the advantages of both automatic and manual transmission driving. When the little woman goes to market or her husband is in traffic, leaving the car in high gear and using the fluid coupling is convenient. For high-performance driving the transmission is always there providing a positive change to the gear desired. Shifting is almost merritorily smooth with the fluid take-up.

Other good mechanical features of the Plymouth include a high ratio on window lifts which eliminates much winding, intelligently sensitive steering which does the same and an engine that has been demonstrated by cab companies to be virtually inexhaustible. The centrally positioned glove compartment is readily accessible to the

driver but only one small ash tray was provided immediately next to the steering post, inconvenient to the front seat passenger. Interiors are notably attractive.

Visibility is good and the dash is uncluttered with protruding knobs and gadgets lessening chances for injury in an accident. Ride is outstanding for a car of this weight.

The Plymouth has traditionally been one of the most dependable cars in the industry and its widespread use in taxi service attests its rugged and economical nature.

## For Enthusiasts Only

An honest-to-goodness Formula III sports car is going to be built near Detroit. Dubbed the Yankee, the car will utilize all-American components including midget racer wheels, an Indian Warrior motorcycle engine and probably a magnesium body. Curb weight of the car is slightly under 500 pounds with an 81-inch wheelbase, 56-inch front tread and a front wheel drive setup expected to haul the car around corners in top style.

Facilities have already been set up in Roseville, Mich. by Yankee Motor Car Co. and production should be coming early next year. Expected prices are \$1700 in kit form and \$2300 for the car assembled.

## Exhaust Notes

Further details on a new sealed beam headlamp for automobiles reported earlier in this column are now available. In final stages of engineering development, the lamp has been submitted to the American Association of Motor Vehicle Administrators for national acceptance, probably this fall.

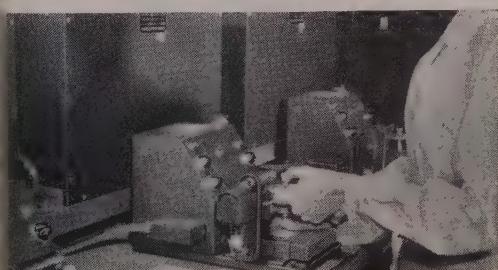
Interchangeable with present headlamps, the unit is aimed at a better pattern of light distribution, especially for the lower beam along the curb or road shoulder. The lamp will provide greater light intensity and incorporates a filament cap inside the unit to give better visibility in fog and rain and to reduce the flash of light often encountered from on-coming cars at close range, says the Automobile Manufacturers Association.

## Pattern for Precision



Precision begins with an ideal at New Departure... an ideal to achieve the ultimate in perfection. Here, engineering, research and production follow this pattern for precision, and the products of their combined effort—both component parts and completed bearings—are subjected to countless tests and inspections. In fact, many of the instruments used in gauging the accuracy and precision of the bearings were designed and developed by New Departure engineers, and some are exclusive with New Departure. The sensitivity of this equipment is revealed in instances where the sphericity of the cups and cones is held within limits measured in millionths of an inch. And the tolerances for other parts...balls, seals and separators...must meet the highest standards. Remember...wherever ball bearings are best for the job, the best ball bearings are made by New Departure.

Automatic torque testers, used in New Departure instrument bearing manufacture are ultra-sensitive... reduce to a minimum any possibility of human error.



NOTHING ROLLS LIKE A BALL



# NEW DEPARTURE

## BALL BEARINGS

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT  
Also Makers of the Famous New Departure Coaster Brake

# Custom made for your forging job



*Another reason why you get uniform, high quality forgings with TIMKEN® forging steels!*

YOUR order for Timken® forging steels is handled individually in our mills. Conditioning procedure is targeted to your particular forging requirements. You get just the steel you want for uniform forgings, rejects are held to a minimum. And you save steel, because the good dimensional tolerances of Timken steel forging bars produce uniform weight multiples with minimum steel lost in flashings.

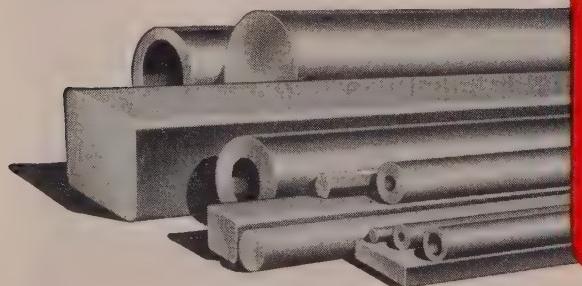
Timken forging steels give you uniform physical properties. They respond uniformly to heat treatment—from bar to bar and heat to heat. Fewer furnace adjustments are needed. And Timken forging steels have uniform grain size after heat treatment. Result: your

forgings have uniformly high ductility and resistance to impact.

Chemical properties, too, are kept uniform in every lot of Timken forging steels by some of the most precise quality control methods known. For example, a direct-reading spectrometer—first of its kind in the steel industry—chemically analyzes a molten heat of Timken forging steel in just 40 seconds! And the melt shop has the complete analysis report within 10 minutes!

For help in improving the quality of your forgings, and cutting production costs, too, write The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

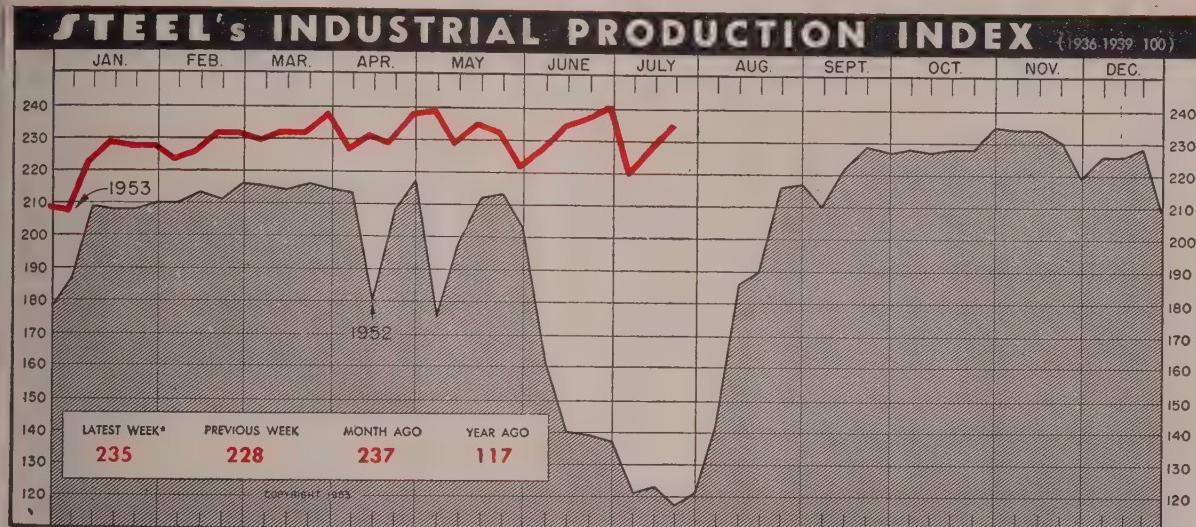
YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH



**TIMKEN**  
TRADE MARK REG. U. S. PAT. OFF.  
**Fine Alloy**  
**STEEL**

SPECIALISTS IN FINE ALLOY STEELS, GRAPHITIC TOOL STEELS AND SEAMLESS TUBING

# The Business Trend



**Production this year is similar to 1951 . . . The steel operating rate falls more than seasonally . . . Family incomes rise proportionately more than prices**

INDUSTRIAL PRODUCTION continues to be strong. So far this year it has borne a striking resemblance to the 1951 trend. Although weekly production in 1953 has been more erratic than in 1951, output in both years was on high plateau for the first six months. But, during the last half of 1951, production adjusted to a slight dip in demand following the post-holiday recovery. Now manufacturers are reckoning with the same factor. Demand appears to be hindering the rise of industrial production to its former peak.

### Production Key . . .

During the week ended July 18, STEEL's indicator of industrial production continued its after-holiday rise. The counter rose 7 points to 235 per cent of the 1936-1939 average. All of the index's factors increased from the preceding week, with the gain in automobile production setting the pace. Moreover, automobile and truck output is the key to whether or not the post-holiday recovery of industrial production will be partial or complete. Outturn of the big three is now unhampered by pro-

duction difficulties and their plants could turn out more cars, if management so desired.

### Slight Readjustment . . .

Another industry that is not pushing production to the limit at present is steel. Although output has been hindered by vacations, close downs and hot weather, those factors obscure the fact that there's a slight dip in demand, also. With manufacturers more cost-conscious than ever, the competition for premium-priced conversion steel is a thing of the past. Major consumers may fight for increased steel allocations but they want to keep their profit per dollar of sales from dropping further.

### Future Optimism . . .

Steel producers are better off profitwise with production a little less than capacity. Not only does this action stretch out their orders but it reduces the amount of overtime, for which a premium is paid, and permits uneconomic facilities to be sidelined. With bookings coming in at a good rate for the last

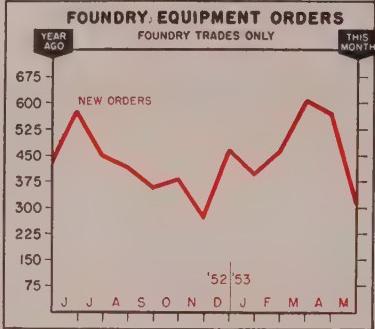
quarter, steelmakers have many reasons behind their optimism for the future. During the week ended July 25, steel output moved up slightly, as furnaces poured 2,183,000 tons of steel for ingots and castings, American Iron & Steel Institute reports.

### Automobile Squeeze . . .

Combined automobile and truck output of U. S. and Canadian plants in the week ended July 18, totaled 178,381 units, a gain of 5 per cent for U. S. plants over the preceding week, according to *Ward's Automotive Reports*. For U. S. factories this monthly outturn was the fifth highest of the year so far. Operations of the Ford Motor Co. paced the increase, as 14 of its 16 plants worked overtime. While General Motors operated near its 1953 peak, Packard and Studebaker output rose rapidly. However, Hudson was engaged in model changeover activities and Nash was suffering from inventory dislocations. Kaiser joined these independents in a production shutdown.

### Measuring Demand . . .

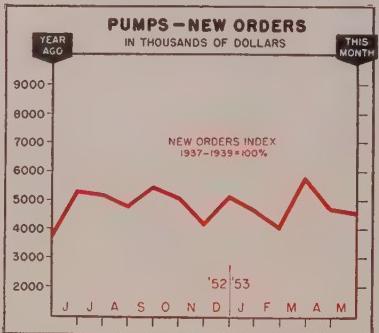
With the end of the 39-day strike of local tool and die workers, Chrysler Corp. could raise its production sights. Chrysler spokesmen say that no decision has been



#### Foundry Equipment Orders

	Index		Value,	
	(1935-1939=100)	1953	1952	Thousands
Jan.	301.0	404.5	\$1,379	1,862
Feb.	257.3	200.4	1,179	922
Mar.	396.7	310.0	1,818	1,427
Apr.	303.0	385.1	1,305	1,773
May	294.4	225.2	1,568	1,037
June	353.8	...	1,629	
July	243.9	...	1,583	
Aug.	311.6	...	1,434	
Sept.	365.9	...	1,685	
Oct.	335.8	...	1,538	
Nov.	258.1	...	1,183	
Dec.	343.3	...	1,573	

Foundry Equipment Mfrs. Assn.

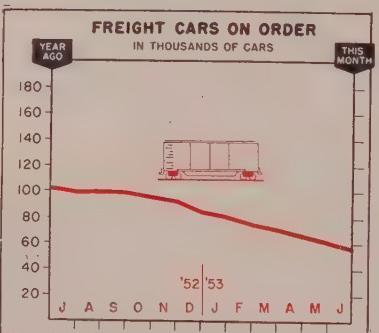


#### Pumps, New Orders

In Thousands of Dollars

	1953	1952	1951
Jan.	5,752	5,517	6,477
Feb.	6,521	6,020	6,480
Mar.	8,255	5,925	7,654
Apr.	7,758	6,354	7,583
May	4,629	6,140	6,371
June	7,957	6,852	
July	6,299	8,358	
Aug.	5,921	5,911	
Sept.	5,258	6,552	
Oct.	5,534	6,506	
Nov.	4,130	5,998	
Dec.	6,575	5,553	
Total	71,630	80,175	

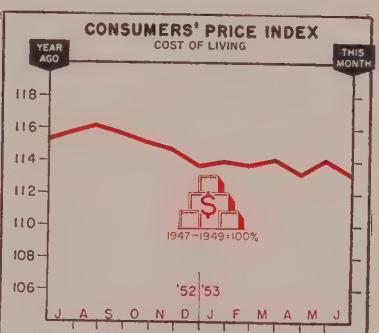
Hydraulic Institute



#### Freight Car Awards and Backlogs

	Awards		Backlogs*	
	1953	1952	1953	1952
Jan.	5,536	5,338	77,414	120,251
Feb.	2,284	7,358	71,883	118,900
Mar.	3,379	5,619	68,553	115,854
Apr.	2,432	397	62,637	108,270
May	1,651	2,502	57,345	103,910
June	1,463	3,264	52,315	99,615
July	1,536	...	95,265	
Aug.	4,558	...	95,761	
Sept.	3,628	...	95,377	
Oct.	1,423	...	90,703	
Nov.	2,878	...	87,657	
Dec.	1,159	...	80,296	
Total	37,261			

\*End of month.  
American Railway Car Institute



#### Wholesale Price Index

(1947-1949=100)

	1953	1952	1951
Jan.	109.9	113.0	115.0
Feb.	109.6	112.6	116.5
Mar.	110.6	112.3	116.5
Apr.	109.4	111.8	116.3
May	109.8	111.6	115.9
June	109.4	111.3	115.1
July	111.8	114.2	
Aug.	112.2	113.7	
Sept.	111.7	113.4	
Oct.	111.1	113.7	
Nov.	110.7	113.6	
Dec.	109.6	113.5	

U. S. Bureau of Labor Statistics

Charts Copyright 1953 STEEL

#### Issue Dates on other FACTS and FIGURES Published by STEEL

Construction	July 6	Indus. Production	June 22	Refrigerators	May 18
Durable Goods	July 13	Ironers	June 20	Steel Castings	July 20
Employ., Metalwk.	July 6	Machin. Tools	July 6	Steel Forgings	July 20
Employ., Steel	June 1	Malleable Castings	July 20	Steel Shipments	June 22
Fab. Struc. Steel	July 13	Prices, Consumer	June 22	Vacuum Cleaners	June 29
Furnaces, Indus.	July 13	Radio, TV	May 25	Wages, Metalwk.	July 6
Gear Sales	July 13	Ranges, Elec.	April 13	Washers	June 29
Gray Iron Castings	July 20	Ranges, Gas	May 18	Water Heaters	June 29

made as to when these men will be recalled. A fear of overproduction is influencing the delay in announcing the decision. Furthermore, the tightening of credit on used cars five and six years old will make car manufacturers pay more attention to actual demand. Their dealers have financial limits to be considered also.

#### Miners Return . . .

Like automobiles, coal production rose in the latest week. With the miners' vacation period over, 6,860,000 net tons of coal were mined in the week ended July 11. The increased coal output pace the rise in loadings of railroad revenue freight. During the week ended July 11, a total of 721,450 cars were loaded, 7.6 per cent more than the previous week. The drought in the Southwest impeded the rise in loadings, however, for grain and grain-product loadings dropped by more than 1000 cars to 57,371 carloads.

#### Less Energy . . .

Mass vacations are having a telling effect on the recovery of electrical output from the holiday. At the end of the second week in July, output of electricity was 8,096,149,000 kilowatt hours, 350 million less than the 1952 peak and a gain of only a little over 100 million kilowatt hours from the week ended July 4. Within a few weeks, the industrial use of electric power will return to normal and toward the end of the year electric output should establish some new production records.

#### Firm Foundation . . .

The value of building permits issued for the first six months of 1953 was the second highest on record, exceeded only in the first half of 1950, says Dun & Bradstreet Inc. But the expected mid-year decline set in during June. Construction awards in the 31 states east of the Rockies declined 25 per cent from May, and the total in June was \$1,210,509,000, according to the F. W. Dodge Corp. Despite the decline nonfarm housing starts in June exceeded the 100-thousand-unit level for the fourth consecutive time this year. The decline in June was the greatest on a percentage basis in the

## BAROMETERS OF BUSINESS

### INDUSTRY

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Output (per cent of capacity) <sup>2</sup> ....	96.0	94.5	15.0
Electric Power Distributed (million kwhr)....	8,209	8,096	7,180
Bituminous Coal Output (daily av.—1000 tons)....	1,143	263	863
Petroleum Production (daily av.—1000 bbl)....	6,479 <sup>1</sup>	6,483	6,078
Construction Volume (ENR—millions)....	\$264.2	\$191.6	\$295.8
Automobile, Truck Output (Ward's—units)....	178,381	167,560	32,468

### TRADE

Freight Car Loadings (unit—1000 cars)....	760 <sup>1</sup>	721	609
Business Failures (Dun & Bradstreet, number)....	148	139	103
Currency in Circulation (millions) <sup>3</sup> ....	\$30,163	\$30,279	\$28,988
Dept. Store Sales (changes from year ago) <sup>3</sup> ....	+11%	0%	+1%

### FINANCE

Bank Clearings (Dun & Bradstreet, millions)....	\$15,915	\$16,959	\$16,709
Federal Gross Debt (billions)....	\$272.4	\$266.3	\$263.0
Bond Volume, NYSE (millions)....	\$12.4	\$12.3	\$14.1
Stocks Sales, NYSE (thousands of shares)....	4,628	4,571	5,468
Loans and Investments (billions) <sup>4</sup> ....	\$76.1	\$75.5	\$76.7
United States Gov't. Obligations Held (billions) <sup>4</sup> ....	\$29.3	\$29.5	\$33.4

### PRICES

STEEL's Weighted Finished Steel Price Index <sup>5</sup> ....	189.33	189.18	171.92
STEEL's Nonferrous Metal Price Index <sup>6</sup> ....	224.7	224.7	224.6
All Commodities <sup>7</sup> ....	110.4	109.8	111.8
All Commodities Other Than Farm and Foods <sup>7</sup> ....	114.5	114.4	112.5

\*Dates on request. <sup>1</sup>Preliminary. <sup>2</sup>Weekly capacities, net tons: 1953, 2,254,459; 1952, 2,077,040. <sup>3</sup>Federal Reserve Board. <sup>4</sup>Member banks, Federal Reserve System. <sup>5</sup>1935-1939=100. <sup>6</sup>1936-1939=100. <sup>7</sup>Bureau of Labor Statistics Index, 1947-1949=100.

residential area, where it amounted to 27 per cent. In that connection the new housing law that reduces to 5 per cent the down payment on FHA guaranteed mortgages of up to \$12,000 should result in increased demands for residential construction.

### Could Be...

Arno H. Johnson, vice president and research director of the J. Walter Thompson Co., said recently that "an increase of only 5 per cent in the civilian standard of living could more than offset the drop of about \$10 billion in government defense expenditures." This could happen. At any rate the civilian standard of living continues to rise every year.

### Better Living...

An analysis of the eight consecutive annual income surveys, conducted since 1944 by the Bureau of the Census, reveals a steady rise in family incomes during this period. Between 1944 and 1951, the average family income increased from \$2,500 to \$3,700. Whereas only one in eight families had income over \$5,000 in 1944, by 1951 the proportion of families with income this high had more than doubled. Higher pay rates accounted for most of this increase, although there was

an increase in the number of family members working. Twenty-five per cent of married women were working in 1951, compared with only 15 per cent in 1940.

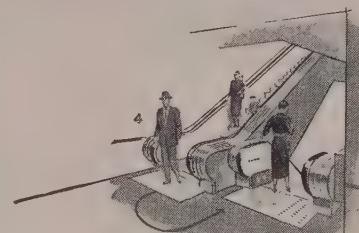
### Slight Change...

Moreover, consumer income has continued to increase since 1951. And in 1951 the purchasing power of the average family was about as high as it was during the peak economic activity of World War II. Consumer prices during 1951 averaged a little over 111, according to the revised Department of Labor index. Over the first five months of 1953, the cost-of-living index has averaged a little more than 113.5 per cent of the 1947-1949 base period. Thus, consumer prices have gone up only slightly more than 2.5 per cent, with income rising considerably more during this two year period.

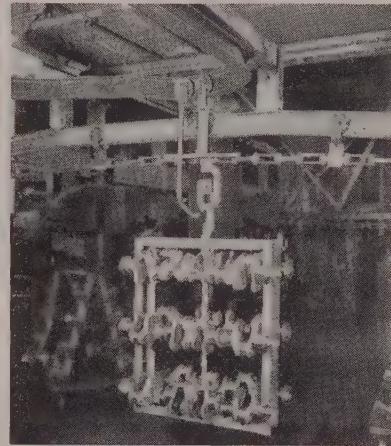
### Wholesale Prices...

Wholesale prices during the 1951-1953 period reveal the reason why the consumer price index has gone up so little. Primary prices during June stood at 109.4 per cent of the 1947-1949 average, says the Bureau of Labor Statistics. This is 4.9 per cent less than the percentage recorded in January, 1951.

## Trans-Free Automation



Trans-Free Conveyor System—automatically transfers loads from main Live Line to Free Lines—and back again.



One of the intermediate production stations in the Allied Trans-Free Conveyor System, showing a rack of parts being transferred from the Live Line to the Free Line.

At various locations production parts can be automatically removed from the main Live Line to adjacent Free Lines. At these points, intermediate production operations are performed. Upon completion, the loads are automatically transferred back to the main Live Line.

The Allied Trans-Free System is applicable to any type of product, large or small.

Allied are specialists on *Automation* and highly engineered *Load Transferring* material handling systems. Consult with our engineering staff on material handling problems that arise in your plant.

See Allied Catalog  
9-52 in Sweet's  
Mechanical Industries  
or write us for a copy.



# ALLIED

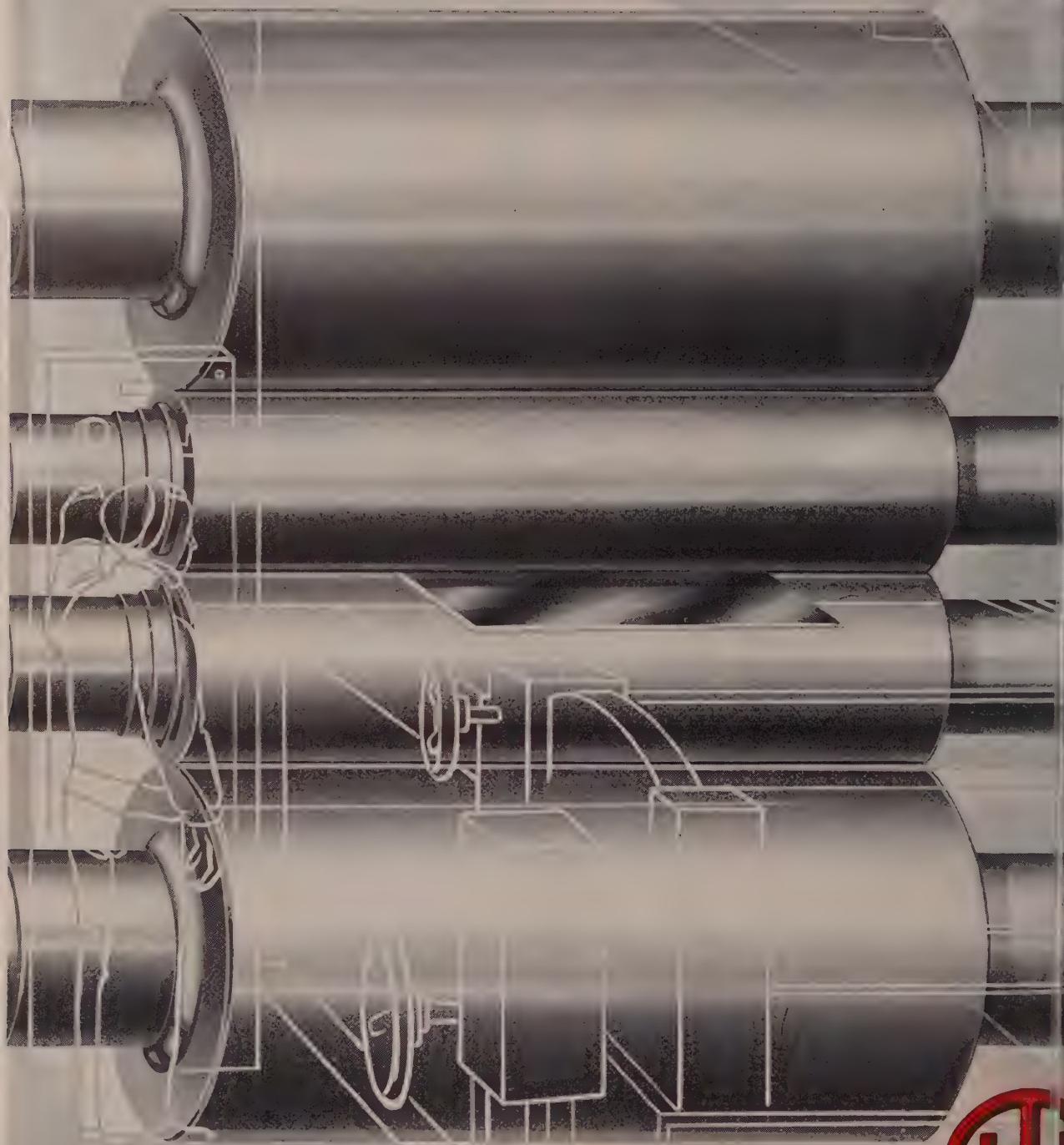
STEEL AND CONVEYORS, INC.

17353 HEALY AVE., DETROIT 12, MICH  
Complete Material Handling Systems  
Designed • Fabricated • Erected

# Ohio Rolls

SHAPING METAL FOR ALL INDUSTRY

Carbon Steel Rolls  
Ohioloy Rolls  
Ohioloy "K" Rolls  
Holl-O-Cast Rolls  
Chilled Iron Rolls  
Denso Iron Rolls  
Nickel Grain Rolls  
Special Iron Rolls  
Nioloy Rolls  
Flintuff Rolls  
Ohio Double-Pour R



THE OHIO STEEL FOUNDRY CO.

LIMA, OHIO • Plants at Lima and Springfield, Ohio



# Men of Industry



**ROSCOE A. AMMON**  
... heads Marion Electrical Instrument



**M. D. ARCHANGELI**  
... Eaton Mfg. divisions gen. sales mgr.



**FORREST R. OLD**  
... Peninsular Grinding Wheel sales mgr.

**Roscoe A. Ammon**, for 12 years general manager and chief engineer, Marion Electrical Instrument Co., Manchester, N. H., has become president and principal stockholder of the corporation. He succeeds **William F. McElroy** who retires from active management but remains a director and continues in an advisory capacity. Mr. Ammon assumes the duties of president and treasurer. **Herbert Schachat** was appointed vice president in charge of operations.

**Lewis-Shepard Co.**, Watertown, Mass., named **W. L. Sheffield** chief engineer.

**Firth Sterling Inc.**, Pittsburgh, appointed **Robert E. Kimmins** as assistant to the steel sales manager. In this capacity, he takes over responsibilities of high temperature alloy steels.

**Lester Long**, vice president-sales and secretary, **American Cast Iron Pipe Co.**, Birmingham, retires after 38 years' service and is succeeded by **A. J. Herrmann**. **J. W. MacKay** succeeds Mr. Herrmann as assistant general sales manager.

**Howard W. Rush** is the new manager of **National Radiator Co.'s** Washington branch sales office. He succeeds **Huber F. Seltzer**, who continues as special representative.

**At Eaton Mfg. Co.**, Cleveland, **M. D. Archangeli** becomes general sales manager, valve and Saginaw divisions; **J. R. Stearns** sales manager, valve division; and **J. R. Harrison** sales manager, Saginaw Division. They continue headquarters at the Detroit office.

**L. B. McKnight**, executive vice president, was elected president and chief executive officer of **Chain Belt Co.**, Milwaukee, succeeding **J. C. Merwin**, named chairman. Mr. McKnight joined the company in 1927 as sales manager of a subsidiary, Stearns Conveyor Co. He entered the parent company in 1932, was elected vice president and a director in 1948 and became executive vice president in 1951.

**MacWhyte Co.**, Kenosha, Wis., appointed **John W. Goodwin** purchasing agent to succeed the late **Charles F. Lamich**.

**B. Otto Wheeley** was made southern district sales manager, tar products division, **Koppers Co. Inc.** Formerly assistant district manager, he succeeds the late **F. G. Owen** at Birmingham.

**E. H. Schoonmaker** was made St. Louis district manager for **EddyStone Division**, Baldwin-Lima-Hamilton Corp. He was previously acting manager for the district.

**Peninsular Grinding Wheel Co.**, Detroit, appointed **Forrest R. Old** sales manager. He joined the company as a sales representative in the Detroit district office in 1944; served as assistant district manager for four years in the Cleveland office and was appointed assistant sales manager in 1952.

**Clinton Bishop** was appointed purchasing agent of **Alan Wood Steel Co.**, Conshohocken, Pa., to succeed the late **George H. Lange**.

**At Aluminum Goods Mfg. Co.**, Manitowoc, Wis., **Fred Terens** was made manager of manufacturing and **Ralph Paddock** manager of quality control and finishes.

**Harold V. Bailey** succeeds **Ed Kelly**, retired, as sales manager of the screw machine department of **Greenlee Bros. & Co.**, Rockford, Ill.

**George V. Clokey**, for the last 13 years in the open-hearth division, Homestead District Works, U. S. Steel Corp., has accepted a position with **Standard Lime & Stone Co.**, Baltimore.

**Universal-Cyclops Steel Corp.**, Bridgeville, Pa., appointed **Alvin E. Hope** Detroit district sales manager. **A. F. MacFarland**, who has been district sales manager, Cyclops Division, and **George Disque**,



JOHN J. PHILLIPS

... gen. mgr. of IBM's new plant



NATHAN LOCKSHIN

... exec. v. p., Builders Structural



GEORGE R. LUNDBERG

... Osborn's brush div. sales mgr.

with the company for many years, were appointed special representatives, Detroit district.

**International Business Machines Corp.**, New York, appointed **John J. Phillips** as general manager of its manufacturing plant now under construction at Greencastle, Ind. Formerly a project manager in the accounting machines assembly department at the firm's Endicott, N. Y., plant, he joined IBM in 1939.

**Farrel-Birmingham Co. Inc.**, Ansonia, Conn., appointed **Robert C. Brady** as New York office manager, succeeding **Carl ter Weele**, who has left the company.

**George A. Fort** and **Eugene C. Kennedy** were appointed, respectively, division superintendent and assistant division superintendent at the Gary, Ind., Works' coke plant, **United States Steel Corp.** Both appointments are effective August 1. Mr. Fort succeeds **James Mc-Intosh**, retired. Mr. Kennedy succeeds Mr. Fort.

**Donald R. Ward** was made assistant to the president of **Evans Products Co.**, Plymouth, Mich. He was director of manufacturing schedules.

**Acme Steel Products Division**, Acme Steel Co., Chicago, appointed the following as product sales managers: **Edward C. Evans**, sales manager-unit load; **C. Robert Lamers**, sales manager-steelstrap; and **John H. Prout**, stitching.

**Builders Structural Steel Corp.**, Cleveland, elected **Nathan Lockshin** executive vice president and **Norman E. Gutfeld** assistant to the chairman of the board and a member of the board of directors. Prior to his appointment, Mr. Lockshin was vice president in charge of Builders' fabrication division.

**Charles L. Doerrer** was appointed district sales manager, east central region, **Stulz-Sickles Co.**, Newark, N. J. He is located in Johnstown, Pa.

**Cleveland-Cliffs Iron Co.**, Cleveland, appointed **H. S. Harrison** vice president-finance; **J. H. Kerr** vice president-law; **J. S. Wilbur** vice president-sales. **C. W. Allen**, former general manager-mining department at Ishpeming, Mich., was made vice president-mining, land and lumbering operations, and is succeeded by **G. J. Holt**, formerly manager of Minnesota mines.

**Vanadium Corp. of America**, New York, appointed **Frederick F. Franklin** manager of transportation development at Chicago.

**Anaconda Wire & Cable Co.** appointed **Robert T. Shiels Jr.** Dallas district manager. **Jim Lord** and **Ray Galenbeck** are new salesmen in, respectively, the Chicago and Seattle offices.

**Wheeling Corrugating Co.**, Wheeling, W. Va., promoted **Robert S. Hughes** to assistant to the manager, Wheeling sales division.

Promotions in the brush division of **Osborn Mfg. Co.**, Cleveland, include **George R. Lundberg** as sales manager; **Frederic T. Turner** as manager, market research; **Everett A. Sisson** as assistant sales manager; **Alfred J. Chandler** as manager, industrial sales; and **C. A. Dolby** as manager, distributor sales. Mr. Lundberg has been with Osborn for 20 years and has served the molding machine division and brush division in many executive capacities. He was formerly assistant sales manager.

**Consolidated Vultee Aircraft Corp.**, San Diego, Calif., named **Charles F. Horne** manager of its Pomona, Calif., division. An electronics and aviation consultant and rear admiral, USN (ret.), he succeeds **Gage Irving**, resigned.

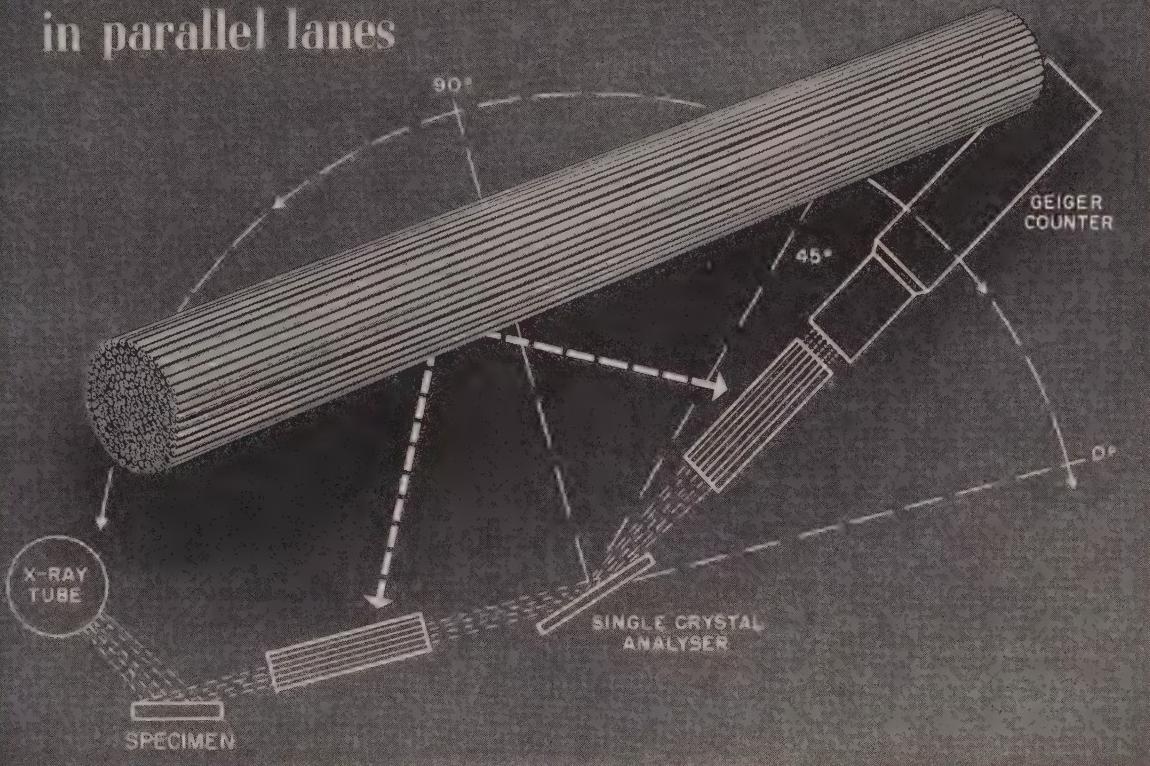
**At Black & Decker Mfg. Co.**, Towson, Md., **John F. Apsey Jr.** was made marketing manager; **G. Ross French** advertising manager and **Robert A. McGrain** sales promotion manager.

**Gerald F. Propst** was made assistant superintendent of industrial relations, **Republic Steel Corp.'s** Cleveland steel plant. This creates a second assistant superintendency in the department headed by **Edward Mandry**.

**E. A. Hakanson** was placed in charge of the Chicago district for **Appleton Electric Co.**

**Benson Hamlin** was appointed to

# The cop who keeps x-ray traffic moving in parallel lanes



Fluorescence analysis is the new, fast way to find out which elements and how much of each are in alloys—without destroying the sample of the alloy.

This trick is accomplished by bombarding the alloy specimen with X-rays using a Fluorescence Analysis Unit produced by North American Philips, Inc. The x-radiations of each element bounce off the specimen only to be separated according to wavelength and measured.

As the x-radiations leave the specimen they shoot through bundles of fine tubes known as "collimators". The collimator acts as a kind of traffic cop, keeps the rays moving in parallel lanes, reduces divergence. This is an interesting

job, and we're pleased that North American Philips chose Superior fine nickel tubing for it on the basis of its uniformity in diameter, wall thickness and finish.

Undoubtedly you have opportunities where tubing could be helpful—as a carrier, a weight-saving structural member, or as a shape that saves machining time. Look into the variety of forms, sizes, and analyses Superior produces to tight specifications. Take advantage of the experience and testing facilities that Superior brings to focus on your problem. Tell us the nature of your application and we'll send you information and a Data Memo by return mail. Superior Tube Company, 2005 Germantown Ave., Norristown, Pa.

Round and Shaped Tubing available in Carbon, Alloy, and Stainless Steels, Nickel Alloys, Beryllium Copper, Titanium and Zirconium.



**Superior**  
THE BIG NAME IN SMALL TUBING

West Coast: Pacific Tube Company, 5710 Smithway St.,  
Los Angeles 22, Calif. UNDERHILL 0-1331

All analyses .010" to 5/8" O.D.  
Certain analyses (.035" Max. wall) up to 1 1/8" O.D.



A. S. NIPPES  
... Elliott div. works mgr.



DR. L. J. BRADY  
... Ferroxcube research director



C. I. BRADFORD  
... Rem-Cru v. p.-operations director

the new position of executive engineer, **Stanley Aviation Corp.**, Buffalo.

**A. S. Nippes** was appointed works manager, **Elliott Co.**, Jeannette, Pa., Division. He is responsible for all manufacturing activities, including foundry and pattern shop, shipping, receiving and inspection departments. Since 1948 he has been superintendent of manufacturing.

**A. W. Rose** was appointed Pacific Coast representative of **Borg-Warner Corp.**, with offices in Los Angeles. He has resigned as vice president and assistant general manager of the corporation's Warner Gear Division.

**Burnham Adams** resigned as sales manager, **AiResearch Mfg. Co.**, Los Angeles.

**Donald P. Fouts**, formerly Columbus, O., district manager, was appointed Cincinnati district manager of **Delta Power Tool Division**, Rockwell Mfg. Co.

**Dr. L. J. Brady** was appointed director of research, **Ferroxcube Corp. of America**, Saugerties, N. Y. He was formerly assistant manager, process development department, **General Aniline & Film Corp.**

**A. W. Kurz Jr.** was promoted to vice president in charge of manufacturing and assistant to the president of **Hunt Loom & Machine Works Inc.**, Greenville, S. C. He was recently made vice president-engineering.

**National Carbon Co.**, division of **Union Carbide & Carbon Corp.**, New York, appointed **J. R. Johnstone** manager, carbon products sales department, and **C. E. Ford** manager, chemical carbon sales department.

**Abner H. Bagenstose** was made eastern regional manager and **John J. Miller** midwestern regional manager of **Insul-Mastic Corp. of America**. They will both maintain headquarters at the firm's home office in Pittsburgh.

## OBITUARIES...

**Alfred W. Thomas Sr.**, a founder, secretary and general manager, **U.S. Textile Machine Co.**, Scranton, Pa., died July 13.

**James J. Henderson**, 59, Buffalo district sales manager, **United States Steel Corp.**, died July 13.

**Alfred Lamberg**, 70, president,

**White Metal Rolling & Stamping Corp.**, Brooklyn, N. Y., died July 13.

**Ellis B. Hassel**, 56, president and founder, **Hassel Iron & Metal Co.**, Milwaukee, died July 12.

**Harold W. Quigley**, identified as an executive for a number of years with **Standard Wire Die Co.** and more recently as head of his own

company, **H. W. Quigley Co.**, Waterbury, Conn., died July 13.

**Max Kuniansky**, executive vice president, **Lynchburg Foundry Co.**, Lynchburg, Va., and former president of **American Foundrymen Society**, died July 21.

**Carl F. Erickson**, 69, founder and owner, **Arrow Pattern & Foundry Co. Inc.**, Chicago, died July 13.

*Specialty wires are a specialty*

with

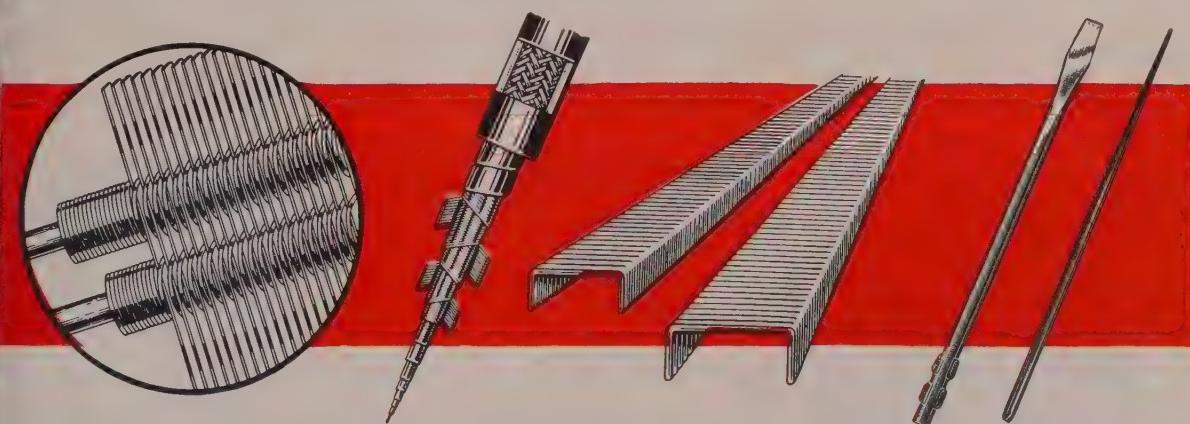
# WICKWIRE

Wickwire specialty steel wires such as flexible shaft wire, spheroidized wire, dent spacer wire, aircraft cord wire, bobbin ring wire, broom and brush wire, weaving wire, rope wire and preformed staple wire have long been proud products of Wickwire.

Our fully integrated facilities enable us to produce wire that is always uniform in temper, tensile and finish . . . wire that's

easily workable and will stand up under the most severe forming operations.

We can meet your most exacting specifications for specialty wire that best suits your particular requirements . . . in high or low carbon steel; round or shaped; and in a wide variety of tempers, grades and finishes. For The Wire You Require—Check First With Wickwire.



THE COLORADO FUEL AND IRON CORPORATION—Denver, Colorado  
THE CALIFORNIA WIRE CLOTH CORPORATION—Oakland, California  
WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo  
Chicago • Detroit • New York • Philadelphia

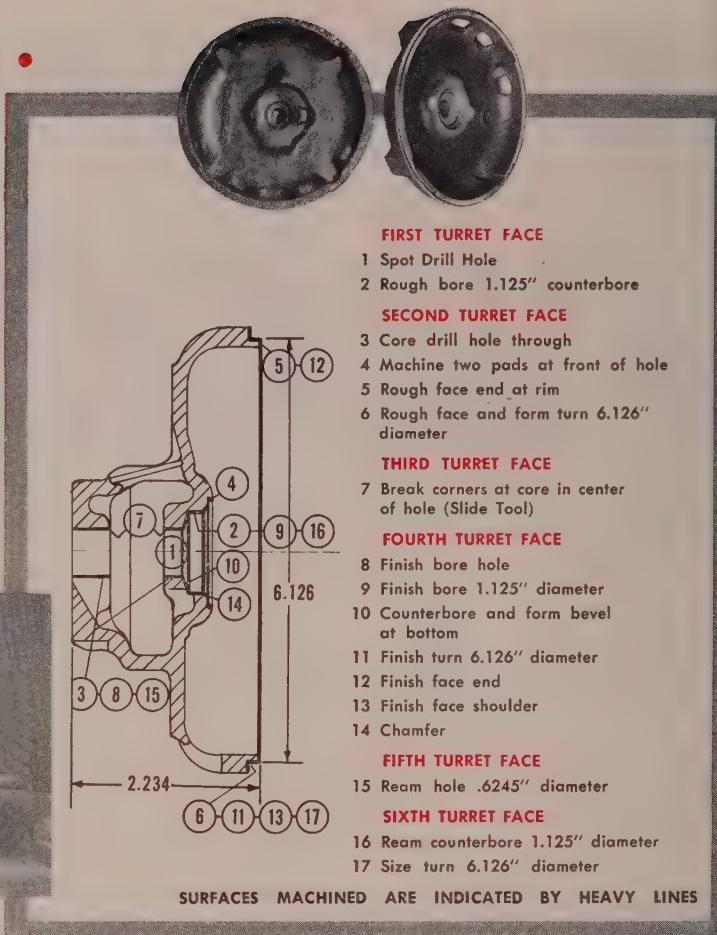
**WICKWIRE WIRE**

WICKWIRE SPENCER STEEL DIVISION  
THE COLORADO FUEL AND IRON CORPORATION



# NOT CLAIMS... BUT ACTUAL FACTS!

17 Operations  
in 1.85 Minutes



with a **3 U SPEED-FLEX Automatic Turret Lathe**  
**PLUS P&J TOOLING**



WRITE DIRECT OR CONTACT YOUR NEAREST  
PRATT & WHITNEY BRANCH OFFICE

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PITTSBURGH • ROCHESTER • SAN FRANCISCO  
ST. LOUIS • EXPORT DEPT., PAWTUCKET, R. I.

AGENTS: DALLAS, THE STANCO CO.  
HOUSTON, WESSENDORFF, HELMS & CO.

**POTTER & JOHNSTON Co.**  
PAWTUCKET, RHODE ISLAND

SUBSIDIARY OF

**PRATT & WHITNEY**

DIVISION NILES - BEMENT - POND COMPANY



## **Ale & Towne Expands**

**Increases participation in powdered metal products industry by purchase of firm in that field**

ALE & TOWNE Mfg. Co., New York, purchased the business and assets of Powdered Metal Products Corp. of America, Franklin Park, Ill.

The acquisition substantially increases the firm's participation in the powdered metal products industry. Last summer, Yale & Towne purchased American Sintered Alloys Inc., Bethel, Conn. Thus, the firm now has eastern and midwestern plants to manufacture and sell powdered metal products. Gilbert T. Chapman is president of Yale & Towne.

Powdered Metal Products Corp. of America was founded in 1943. It operates a plant and laboratory and employs 85 persons.

## **Latrobe Improves Services**

Latrobe Steel Co., Latrobe, Pa., is expanding its service facilities for customers in the New York area. Warehouse and office facilities have been acquired at 741 Ramsey Ave., Hillside, N. J., and will include the sales office now located at 40 W. 40th St., New York. The branch office will be opened shortly

after Aug. 15 and will continue to be under the supervision of W. J. Kennelly, district manager.

## **Fabricating Firm Organized**

Frank G. Oliver and Harold Mayes organized Oliver-Mayes Steel Co. with plant and offices at 2800 Singleton Blvd., Dallas. The firm will specialize in the fabrication of structural steel, reinforcing steel and miscellaneous iron items.

## **Thor To Open Atlanta Branch**

Thor Power Tool Co., Aurora, Ill., will open a sales and service factory branch office in Atlanta on Oct. 1. The firm opened a sales office in Newark, N. J., this month.

## **Forging Plant Nears Completion**

Vanadium-Alloys Steel Canada Ltd. announced that construction is almost finished on a new plant in London, Ont. Forging of roll, tool and specialty steel is expected to start in mid-November.

## **Firm May Be Liquidated**

Special Master Albert H. Aston of Wilkes-Barre, Pa., has ruled out financial reorganization of Carbondale Industries Inc., located at Simpson, Pa., and Reconstruction

Finance Corp. is expected to move for a foreclosure sale. Sale by the RFC would satisfy a \$97,000 judgment representing a government loan to the plant which has been idle for three years. The plant at one time was operated by Heat Transfer Co.

## **Worcester Buys Hi-Pac Corp.**

Worcester Pressed Steel Co., Worcester, Mass., purchased the assets of Hi-Pac Corp., Hillsdale, N. J., manufacturer of a small type of gas pressure cylinder. The Worcester firm fabricates stamped and pressed metal parts. Complete facilities of Hi-Pac are being transported to Worcester, but full production will not start until fall.

## **Square D Celebrates 50th Year**

Square D Co., Detroit, is celebrating its 50th anniversary this year. The company's anniversary book points out that during 50 electrifying years, the use of electricity in homes, stores, offices, institutions and factories has doubled and redoubled many times. Square D's success has been even more spectacular. Factories in Detroit, Milwaukee, Dallas, Los Angeles, San Francisco, Seattle, Peru, Ind., and in Canada and Mexico turn out the equipment needed to dis-



## **Airplane Factory Seeks Safety Underground in Atomic Age**

aab Aircraft Co., Linkoping, Sweden, constructed a fully equipped underground factory in the immediate vicinity of older existing workshops above ground. It was blasted out of bedrock at a secure depth and extends in part under the airfield. It contains the actual workshops; reception, inspection,



Authenticated

and materials testing sections; storehouse, etc. Picture, above left, shows workshop bays for slide lathes; the one at right, the underground corridor



### Bliss Tin Temper Mill Goes Into Production

Among the important equipment at United States Steel Corp.'s huge Fairless Works, Fairless, Pa., is this Bliss 2-stand tandem tin temper mill and tension reel, 19 in. and 53 in. x 48 in. The mill is rated at a maximum speed of 3740 fpm. A crew of only three men is required to operate this mill

tribute and control the power generated.

### Will Build \$9 Million Drydock

Maryland Drydock Co., Baltimore, received a certificate of necessity for about \$9 million for the erection of a floating drydock, 763 ft long. Plans are not yet complete, but work on the project is expected to begin during the next few months. The company has four floating drydocks, the largest being over 600 ft in length. In addition to the new drydock, the company now has under way an extension and improvement program which includes a new weldery building.

### Conant Tool Changes Name

Conant Tool & Engineering Co., Chicago, changed its name to Conant Broach Co. The firm makes broaches and fixtures and engages in broach reconditioning and sharpening.

### Teplow Named to New Post

American Iron & Steel Institute, New York, appointed Leo Teplow as industrial relations consultant. In his new work, Mr. Teplow will take over the duties heretofore performed by Grover C. Brown, who on Sept. 30 will retire after 36

years in the iron and steel industry, including 20 years as secretary of the institute's committee on industrial relations.

### Amercoat Moves Branch Office

Amercoat Corp., South Gate, Calif., manufacturer of protective coatings, moved its district branch office and warehouse from Dallas to 6530 Supply Row, Houston. Lucien L. Miner is the district manager.

### Nelson Opens Three Branches

Nelson Stud Welding Division, Gregory Industries Inc., Lorain, O., established direct factory branch warehouses at Atlanta, St. Louis and Denver. All will stock studs, parts and accessories and will have stud welding guns, generators and battery units which will be available for purchase or rental.

### Forms Steel Warehousing Firm

Thomas Lekich and Leon J. Herman, formerly purchasing director and vice president, respectively, of Copco Steel & Engineering Co., Detroit, have resigned to form their own steel warehousing organization. The new firm, Beacon Steel Co., has its office and warehouse at 19449 Glendale, Detroit. In addi-

tion to warehousing domestic steel, Beacon has been designated as the exclusive midwestern sales representative for several major foreign steel mills.

### Mallory Establishes Branches

P. R. Mallory & Co. Inc., Indianapolis, established branch offices at 44 S. Ludlow St., Dayton, O., and at 710 N. Plankinton Ave., Milwaukee. Named to manage the offices are R. H. Andrew and O. V. Miller, respectively. The firm makes welding dies and electrodes, special alloys, powdered metal products, etc.

### Glidden Plans Expansion

Glidden Co., Cleveland, plans \$750,000 expansion program to increase manufacturing and warehousing space at its Nubian Industrial Division in Chicago. Previous postwar expansion of this division has exceeded \$1 million. The division deals with industrial finishes of all kinds.

### Link-Belt Opens Scarboro Plant

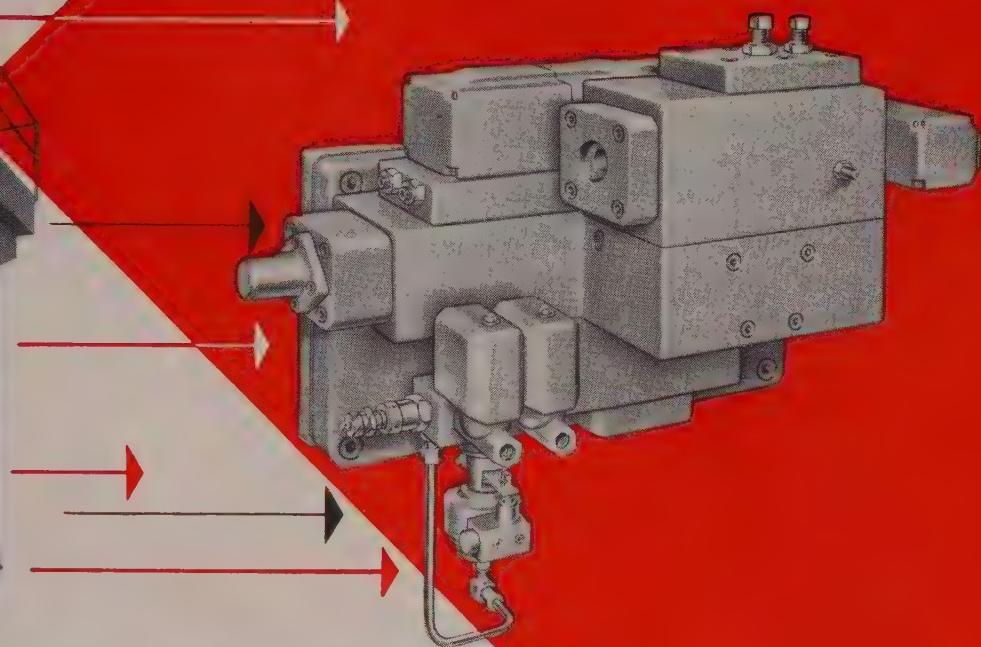
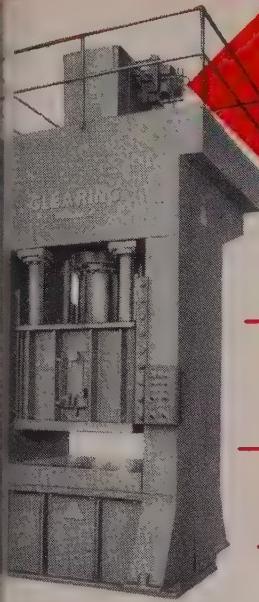
Link-Belt Ltd. officially opened its Scarboro, Ont., engineering plant for the design and manufacture of conveying and processing equipment. Steel fabrication and the heavier assembly work have been moved to this plant from the firm's Toronto plant, which now has increased capacity for production of conveyor and power transmission components.

### Overly Mfg. Rebuilds Plant

Overly Mfg. Co. of California completed construction of its Los Angeles plant, replacing one that was destroyed by fire a year ago. Operations are confined to the manufacture of fire doors, hollow metal doors and pressed steel frames, as well as architectural sheet metal products.

### Keller Tool Forms Subsidiary

Keller Tool Co., Grand Haven, Mich., manufacturer of air tool established a sales subsidiary company, Keller Tool-California Inc., with offices at 1053 W. Seventh St., Los Angeles.



## How Clearing Valve Unit Cuts Hydraulic Press Maintenance



The Clearing Hydraulic valve unit concentrates necessary valving into a solid compact unit, which is firmly anchored to the oil reservoir. Unit construction does away with piping ordinarily required to connect separate valves to the reservoir. In this way the effect of hydraulic pulsation in the system is reduced and maintenance problems due to leaks or failures from this source are eliminated.

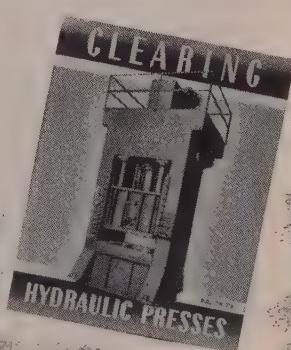


Valve bodies are cut from solid steel forged blocks and all chambers and ports are bored from solid—there can be no harmful distortion. Corrosion resistant, chrome plated valve spools are free to move without the possibility of binding.



This heavy duty hydraulic operating unit was designed by Clearing engineers to give you years of profitable, trouble-free press operation. Another important reason why you get more out of a Clearing hydraulic press.

Catalog on Clearing Hydraulic presses  
will be sent on request. Write today.



# CLEARING PRESSES

## White To Buy Autocar

Acquisition is part of company's long-term plan for diversification in motor truck industry

DIRECTORS of White Motor Co., Cleveland, approved an agreement to acquire Autocar Co., Ardmore, Pa., a producer of heavy-duty trucks.

Robert F. Black, president of White Motor, says, "The move is part of the company's long-term plan for diversification within the motor truck industry."

The purchase agreement is subject to approval of Autocar stockholders, to authorization of new preferred stock by White Motor shareholders and to approval of necessary governmental agencies.

Mr. Black says the purchased company will be operated as the Autocar Division of White Motor Co., with Autocar's personnel continuing in their present posts with this division.

Autocar Co. has been in the motor truck business for over 50 years, specializing in the building of heavy-duty trucks powered by both diesel and gasoline engines.

White's subsidiary, White Motor Co. of Canada Ltd., Montreal, has

started construction on a \$250,000 branch building at Regina, Sask. The building will enlarge truck sales and service facilities in that territory.

## Angelus Plans To Build Plant

Angelus Steel Treating Corp. will construct a plant at 2921 Leonis Blvd., Los Angeles, for the manufacture of commercial heat treating equipment. Completion is scheduled by August. A. W. Calkins is vice president and general manager.

## Milwaukee Brass Is Liquidated

Minnesota Chemical Co., St. Paul, purchased the former Milwaukee Brass Mfg. Co. plant at 127 E. Lapham St., Milwaukee, and will establish a branch factory there. Milwaukee Brass Mfg. is going out of business.

## DeVilbiss To Move Plant

DeVilbiss Mfg. Co. Ltd., will shift manufacturing operations from Windsor, Ont., to a new \$600,000 plant at Barrie, Ont., about Dec. 1. The firm makes atomizers and spray painting equipment and is a

subsidiary of DeVilbiss Co., located in Toledo, O.

## Polson Joins Research Staff

Maurice M. Polson, a mechanical engineer, joined the staff of Tour & Co. Inc., an industrial search and testing organization, New York. Mr. Polson, a native of Great Britain, was an administrative engineer in the Division of Tank Design, British War Office, and subsequently worked on plant layout and production engineering problems involving machine tools and specialized packaging machinery. After arriving in this country in 1951, he worked on the design and development of aircraft instrumentation.

## Plans Auto Accessory Plant

Fran Steel Products, with headquarters in Turin, Italy, will begin production at a plant in Niagara Falls, Ont., early next year. It will make springs for automobiles and other auto accessories. The plant will have 10,000 sq ft of floor space.

## Canada Wire & Cable Expands

Canada Wire & Cable Ltd., Leaside, Ont., purchased a factory in Smiths Falls, Ont., and will erect a 43,000 sq ft addition to house steel rope operations. Equipment from the Leaside plant will be moved to the new location and is expected to be in operation by the end of the year.

## Alloy Rods Co. Names Agents

Alloy Rods Co., York, Pa., manufacturer of alloy arc welding electrodes, appointed as its distributors: Welders Supply Co., Elgin, Ill.; Welders Supplies & Gas Co., Kalamazoo, Mich.; Beaver Welding Supply Co., Memphis, Tenn.; Pittsburgh Bass Co. Inc., Nashville, Tenn.; Paducah Iron Welders Supply Co., Paducah, Ky.

## Westinghouse Builds in East

Westinghouse Electric Corp., Pittsburgh, plans to start work once on construction of a building on land adjacent to the company's

(Please Turn to Page 69)



United Press

### New Device Minimizes Fire Hazards

Co-inventor R. H. Postal demonstrates an automatic device developed to minimize fire hazards. The unit is based on a thermistor cable which reacts to the slightest touch of flame. It is shown looped around a gasoline-soaked wooden box, then extending to an instrument panel and through the panel to a fire-extinguisher tank. As the flame hits the cable, the extinguisher is discharged.



# *Gift Wrapped-* A Customer's Job-Proved View of the Mona-Matic

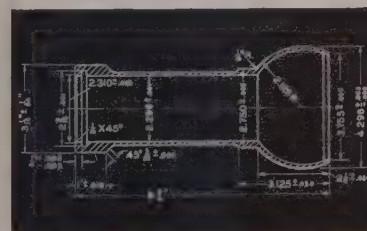
Gift? Here are the facts, the job and the results. You decide what you'd think, if it were your job!

The National Machine Works, Oklahoma City, produces a fine drive shaft housing repair kit, consisting of a steel sleeve and ball housing (see details, left). Previously, 4 machines—4 operators—were required.

Now, thanks to the Mona-Matic's built-in gift for boosting output (plus savings on setup, form tools, tool change and grinding) this happy user is not only handling production with one machine, but has also materially increased production. If that doesn't strike you as a gift, consider this fact—this Mona-Matic, not even operating full time, has *paid for itself in less than one year!*

The Monarch Mona-Matic, briefly, is a fully automatic cycle, high-speed, Air-Gage Tracer controlled, single running tool turning machine—easily set up, extremely accurate, with infinite feed range and integrated rear carriage. It is furnished in a variety of versions, all proved in both long and short runs.

We've prepared Booklet #1805 giving the full story of the Mona-Matic—complete with data, specifications and many other job reports. Even if you don't believe in gifts, there's no time like the present! Write now . . . *The Monarch Machine Tool Company, Sidney, Ohio.*



**BALL HOUSING** (left): Fabricated steel. Turn ball and opposite end diameter; bore and form internal groove. Limits  $\pm .001"$ . Replacing battery of 4 machines, Mona-Matic raised production from 150 to 260 parts per day.  
**SLEEVE** (right): Steel. Bore and internal chamfer both ends. Production increased from 20 to 70 parts per hour.

**Monarch**  
TURNING MACHINES



FOR A GOOD TURN FASTER . . . TURN TO MONARCH

# NOW

# M & T Completes the Picture



### M & T RECTIFIER WELDERS

Rugged, newly designed units for day-in, day-out service on the production line. M & T Rectifiers provide DC welding current with AC welder low operating cost and freedom from maintenance — operate at unusually low temperatures for longer life, more trouble-free service. Available in 200, 300 and 400 amp ratings at 60% duty cycle.

### M & T DC WELDERS

M & T DC Welders — both motor-generator and gas driven sets — are proven by more than 10 years actual field service. They are more efficient, lighter in weight, and more compact. New one-dial control panels provide easy and positive regulation of the welding current. Available in light duty 200 amp, and heavy duty 200, 300 and 400 amp models.

### M & T AC WELDERS

Silicone insulation gives M & T AC Transformers high resistance to moisture, chemical fumes and heat — can take temperatures 30% higher than other types of insulation. New range switch provides fast changing from high to low range — no lead to unplug. Case-mounted primary switch saves current between welds. M & T AC Transformers are furnished in light duty 200 amp and heavy duty, industrial 200, 300 and 400 amp ratings.

### M & T INERT-ARC WELDERS

Completely self-contained design with automatic controls. Series blocking capacitors provide "balanced wave" current. Designed and built throughout for inert-arc welding. Models with and without crater fillers in 200 and 400 amp capacities.

Complete Service to the Welding Field — Companions to M & T's complete machine line are MUREX ELECTRODES and M & T WELDING ACCESSORIES . . . top quality products which contribute to the M & T reputation as a single source for all arc welding needs.

Complete information available on any M & T product or advisory service on any arc welding problem without obligation — write for it!



## METAL & THERMIT CORPORATION

100 East 42 Street • New York 17, N. Y.

MUREX ELECTRODES • ARC WELDERS • ACCESSORIES

#### DETINNING

#### THERMIT WELDING

#### METALS and ALLOYS

#### ARC WELDING — Materials and Equipment

#### CHEMICAL and ANODES for Electrotinning

#### CERAMIC OPACIFIERS

#### STABILIZERS for Plastics

#### TIN, ANTIMONY and ZIRCONIUM CHEMICALS

(Continued from Page 66)

owave plant at Arbutus, Md. building will house the Guided missile Ground Control Engineering Department. Maynard E. Engs is in charge of the division.

### Frantz Completes 35th Year

G. Frantz, president, Apex Electrical Mfg. Co., Cleveland, ended out 35 years July 18 as secretary-treasurer of Vacuum Sealer Manufacturers' Association.

### Line Co. Moves Branch Office

Crane Co., La Crosse, Wis., manufacturer of air conditioning, heating and ventilating equipment, moved its Chattanooga, Tenn., office to 308 S. Kelley St.

### Parker Consolidates Activities

Parker Appliance Co., Cleveland, manufacturer of components for craft fuel and hydraulic systems, consolidated on the West Coast all its aircraft activity, exclusive of jet engine accessories. Subsidiary, Parker Aircraft Co., Los Angeles, has taken over all of engineering, production and

(Please turn to Page 72)



### Enamored Steel Tested

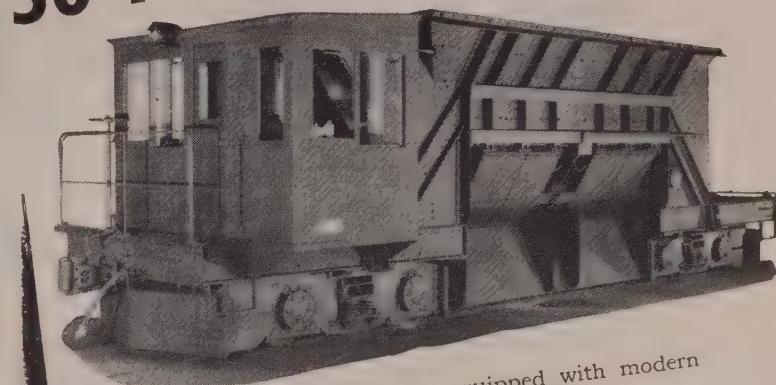
Jul Crider, technologist at U. S. Steel's enamel laboratory in Pittsburgh, tests an enamored steel panel for adherence under torsion. A sheet of porcelain-enamored steel placed in "torture" machine under controlled measured force is twisted until the surface cracks and flakes off.



## of the "HIGHLINE" ATLAS ore transfers

We've been building transfers longer than we care to remember . . . most of them are still running. They are the "Star" performers on the highline. We're proud of their ability to meet specific performance requirements of our customers.

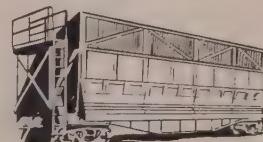
### 50-TON ORE TRANSFER



This Atlas Ore Transfer is equipped with modern hydraulically operated discharge gates and brakes. Steel plate trucks are provided. The cab is overhung at one side to give the operator a line of vision alongside the car. The car is equipped with electric space heaters.



Scale Cars



Coke Quenchers



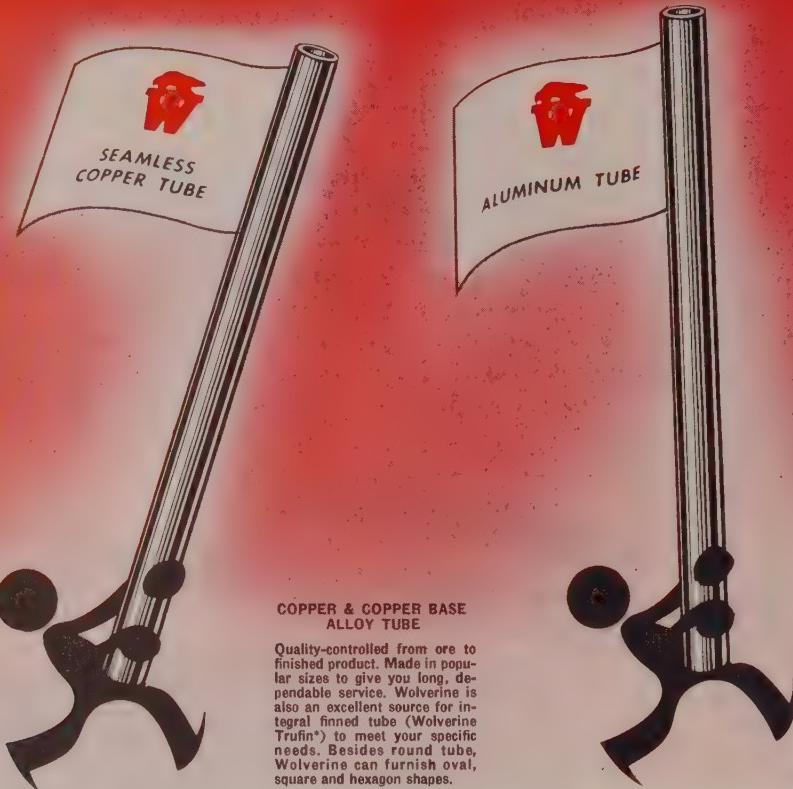
**THE ATLAS CAR & MFG. CO.**

ENGINEERS

MANUFACTURERS

1140 IVANHOE RD.

CLEVELAND 10, OHIO, U.S.A.



COPPER & COPPER BASE  
ALLOY TUBE

Quality-controlled from ore to finished product. Made in popular sizes to give you long, dependable service. Wolverine is also an excellent source for integral finned tube (Wolverine Trufin\*) to meet your specific needs. Besides round tube, Wolverine can furnish oval, square and hexagon shapes.

ALUMINUM TUBE

Made from 2 S and 3 S aluminum, 2 S, in sizes  $\frac{1}{8}$ " O.D. to  $2\frac{1}{4}$ " O.D., nominal composition of 99.0% of aluminum; and 3 S in sizes  $\frac{1}{8}$ " O.D. to  $2\frac{1}{4}$ " O.D., 97.0% aluminum and 1.25% of manganese.

# STEP AHEAD

These tubes—carrying the distinguished Wolverine mark of top quality—are always up front.

Why are they in this leading position? What gives them their unique quality? Not men and machines alone. No, sir!

Look beyond the equipment and the guiding hands that produce these Wolverine tubes and you will realize the tireless research and development going on continuously in order that your particular tube requirements can be satisfied. We try to prepare not only for your current tubing needs but for those of tomorrow as well.

We must stay ahead of the procession, ever alert to changing conditions, to be ready to meet your future needs.

**WOLVERINE TUBE DIVISION**  
of CALUMET & HECLA, INC.

Manufacturers of Quality-Controlled Tubing  
1439 CENTRAL AVENUE • DETROIT 9, MICHIGAN

Plants in Detroit, Mich. & Decatur, Ala. Sales offices in principal cities



Export Department, 13 E. 40th St., New York 16, N. Y.



*with* WOLVERINE

You can always feel confident that Wolverine tube will lead the way toward giving you top tube performance.

## MORE ABOUT THE C. E. S.

The Wolverine Customer Engineering Service was set up especially to help you and other manufacturers solve problems that deal with tube and tubular parts.

The service embraces the following phases of manufacture: engineering, product development, technical and production assistance—which you can consider individually or in combination with any of the others. Laboratory and experimental equipment is available to you where required, and tests, too, may be conducted.

We invite you to bring in your tube problems.

\*REG. U. S. PAT. OFF.

**Wolverine Trufin and the Wolverine Spun End Process available in Canada through the Unifin Tube Co., London, Ontario.**

**WOLVERINE TUBE DIVISION**  
of CALUMET & HECLA, INC.

**Manufacturers of Quality-Controlled Tubing**  
1439 CENTRAL AVENUE • DETROIT 9, MICHIGAN

Export Department, 13 E. 40th St., New York 16, N. Y.

(Continued from Page 69)

sales activities of the firm's aviation products with the exception of jet engine components which are still manufactured by the Engine Accessories Division in Cleveland.

### E. W. Davis Works

RESERVE MINING CO.'S large taconite processing plant, under construction near Beaver Bay, Minn., has been named the "E. W. Davis Works" in honor of Prof. E. W. Davis, director, Mines Experiment Station, University of Minnesota.

E. W. Davis Works will have an annual capacity of 3,750,000 tons of iron ore pellets made from taconite in 1957. The company has plans for possible expansion of this plant to an eventual capacity of 10 million tons of pellets a year.

Reserve is operating a taconite processing plant of 300,000 tons per year capacity at Babbitt, Minn.

FIND OUT  
ABOUT

**IRIDITE®**

TODAY for  
finishing ZINC, CADMIUM, ALUMINUM, CUPROUS METALS

high corrosion resistance  
paint base  
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final finishes

SPECS FOR  
NON-FERROUS  
FINISHING  
GOT YOU  
DOWN?



**WANT CORROSION RESISTANCE?** Iridite will give you better-than-specification protection against corrosion.

**WANT PAINT ADHERENCE?** Iridite provides a firm and lasting base for paint by preventing under-film corrosion.

**WANT EYE-APPEAL?** Iridite can give you a variety of finishes, depending upon the metal being finished . . . from clear and sparkling bright or military olive drab, to attractive dyed colors.

**BEST OF ALL,** any Iridite finish is economical and easy to apply.

for example: **IRIDITE® (AL-COAT)**  
REDUCES NEED FOR ANODIZING

Simple chemical dip; immersion time only 10 seconds to 2 minutes; no sealing dip; color is clear or yellow depending upon your requirements; salt spray resistance equivalent to 20 to 30 minutes of anodizing, eliminates need for costly racks and electrical power.

**WANT TO KNOW MORE?** Write for literature and send production samples for free test processing. See "Plating Supplies" in your classified telephone directory or write direct.

Iridite is approved under government specifications.

**ALLIED RESEARCH PRODUCTS**  
INCORPORATED  
4004-06 E. MONUMENT STREET • BALTIMORE 5, MD.



### Lukens Opens Richmond Office

Lukens Steel Co., Coatesville, Pa., established a district office in the Central National Bank building, Richmond, Va. George B. Copland is in charge of the office. The firm discontinued its Baltimore office and C. Rider Brandau, in charge, has become associated with the Coatesville district sales office.

### Bryant Machinery Moves Office

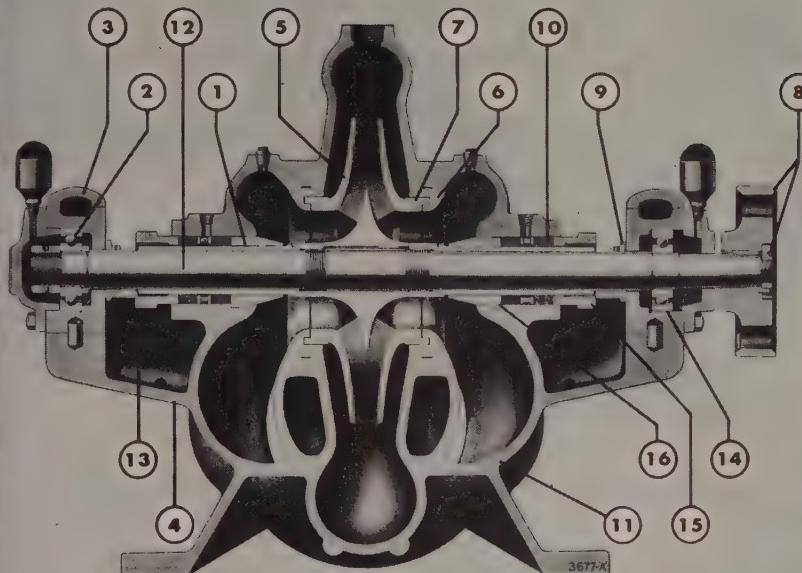
Bryant Machinery & Engineering Co. moved its general office to 640 W. Washington Blvd., Chicago 6.

### Star Headlight Moves Plant

Star Headlight & Lantern Co., Rochester, N. Y., has moved to a new plant in Honeoye Falls, N. Y. The building has 10,000 sq ft of manufacturing space, more than double the area of the old location. Since 1930, the firm has concentrated on the production of ele-

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SINGLE STAGE  
CENTRIFUGAL PUMPS

*for dependable industrial service*



Labyrinth wearing rings minimize leakage...maintain high efficiencies



Labyrinth rings used in these De Laval pumps retard flow of water through labyrinth passage.



Flat rings showing relatively unimpeded flow of water.

① **Shaft Sleeves** are screwed on, to abut the impeller and make a water-tight joint. Sleeve expands freely and independently of shaft when temperatures change. There is no tendency to buckle.

② **Thrust Bearing** locates rotor axially.

③ **Bearing Caps** easily removable for maintenance.

④ **Bearing Brackets** scraped to lining bars for perfect alignment.

⑤ **Impeller** hydraulically balanced, finished on all surfaces.

⑥ **Labyrinth Wearing Rings** held accurately in machined grooves in both case and cover.

⑦ **Impeller Wearing Rings** threaded on impeller, opposite to rotation.

⑧ **Flexible Coupling** ground on all exposed surfaces and statically balanced, complete coupling supplied, pump half mounted on taper so that it can be easily removed. Check nut locks coupling on taper.

⑨ **Deflector** keeps water out of bearing.

⑩ **Stuffing Boxes** extra deep; lantern rings for water sealing.

⑪ **Pump Case** horizontally split; machined to limit gages.

⑫ **Steel Shaft** ground to limit gages.

⑬ **Drip Boxes** large; provided with drain openings.

⑭ **Radial Bearing** free to move axially, thus avoiding temperature strains.

⑮ **Glands** split horizontally.

⑯ **Protecting Bushings** renewable.

You can count on the performance of the De Laval Single Stage Centrifugal Pumps because they are precision-made to high manufacturing standards and incorporate the many quality design features shown in the cross-section.

They operate at high or low speeds, at high or low heads...with maximum efficiency.

For example, De Laval G, I and K Single Stage Double Suction Pumps have a capacity range of 175 gpm to 6,000 gpm, and heads to 300 feet. They are available in sizes ranging from 4" suction and 3" discharge to 14" suction and 12" discharge. Write for Bulletin 1002.

DeLaval also furnishes larger centrifugals for capacities up to 70,000 gpm.

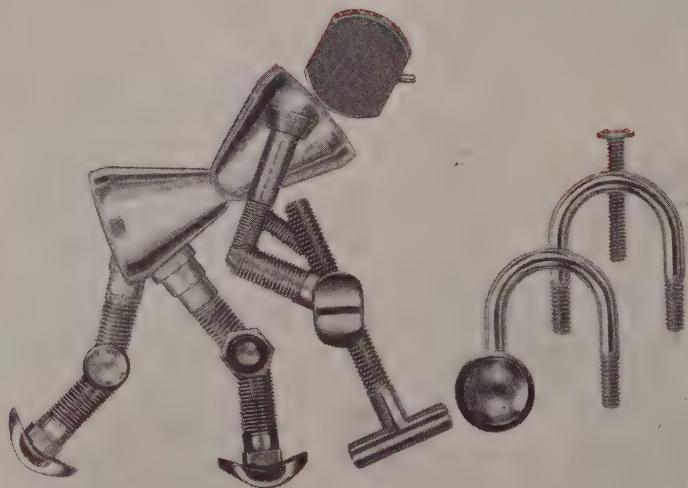


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United Press

### Mesh for Flesh

Hot weather note on unusual uses for metal products: Air-conditioned manikins of chicken wire turned up recently at a German traffic exhibition

electric railroad lanterns designed for signaling.

### Damascus Tube Names Agent

Damascus Tube Co., Greenville, Pa., manufacturer of stainless steel tubing, appointed John M. Kirk Co., Malden, Mass., as its sales representative in the New England territory.

### Builds Appliance Control Plant

General Controls Co., Glendale, Calif., started construction of a 120,000 sq ft plant in Burbank, Calif., for manufacture of appliance controls. It is the company's third expansion within 12 months.

### Builds Engineering Building

Douglas Aircraft Co. started constructing in El Segundo, Calif., a \$2-million engineering building containing two engineering rooms each an acre in size. The two story building will provide working area for 1600 engineers.

### Manganese Reduction Expands

Manganese Reduction Corp., Baltimore, manufacturer of manganese chloride and manganese oxide, is doubling its output with the addition of a second gas-fired furnace for the treatment of manganese ore. The company utilizes about 10,000 sq ft of floor space.

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product  
belongs in  
metalworking...

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belongs in... **STEEL**

Materials handling is a major problem with the men who run the 17,000 metalworking plants reached by STEEL.

One of the important reasons why so many materials

handling advertisers use STEEL is because it reaches all 4 members of the buying group—the key management, production, engineering and purchasing men who have a voice in the selection of new materials handling equipment for the world's biggest industrial market.

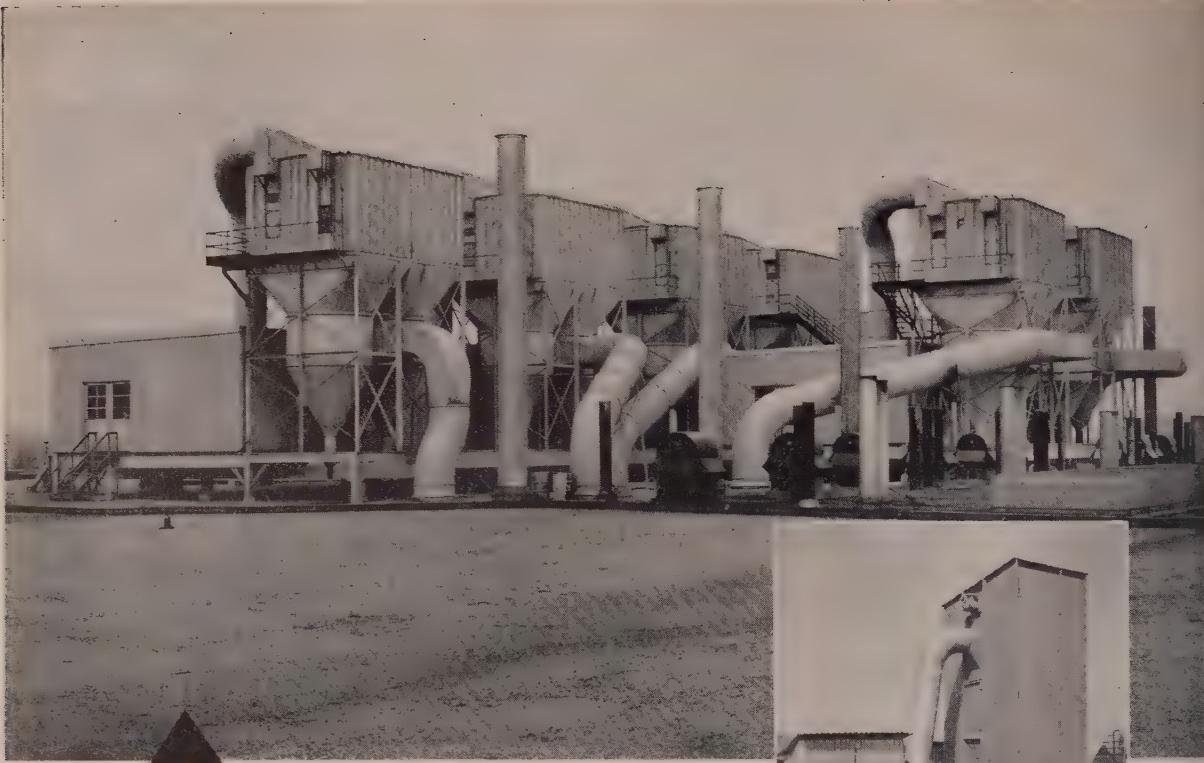
STEEL • Penton Building • Cleveland 13, Ohio

These 65 manufacturers of materials handling equipment advertised in STEEL during 1952

Alliance Machine Co.  
Alvey-Ferguson Co.  
American Chain Div., American Chain & Cable Co.  
American Hoist & Derrick Co.  
Atlas Car & Manufacturing Co.  
Baker Industrial Truck Div., Baker-Raulang Co.  
Bedford Foundry & Machine Co.  
Boston Woven Hose & Rubber Co.  
Victor R. Browning Co.  
Byers Machine Co.  
Chicago Freight Car & Parts Co.  
Chain Belt Co.  
Clark Equipment Co.  
Cleveland Crane & Engineering Co.  
Wickwire Spencer Div., Colorado Fuel & Iron Co.  
Columbus McKinnon Chain Corp.  
Cullen Fristedt Co.  
Davenport Locomotive Whs. Div., Davenport Besler Corp.  
Dempster Brothers, Inc.  
Differential Steel Car Co.  
Dings Magnetic Separator Co.  
Easton Car & Construction Co.  
Economy Engineering Co.  
Elwell Parker Electric Co.  
Electric Storage Battery Co.  
Euclid Crane & Hoist Co.  
Farrell-Cheek Steel Co.  
Goodyear Tire & Rubber Co.  
Gould-National Batteries, Inc.  
Harnischfeger Corp.  
Hewitt-Robins, Inc.  
Heyl & Patterson, Inc.  
Industrial Brownhoist Corp.  
Jeffrey Manufacturing Co.  
Link Belt Co.  
Logan Co.  
McCaffrey-Ruddock Tagline Corp.  
McKay Co.  
MacWhyte Co.  
Madesco Tackle Block Co.  
Mathews Conveyor Co.  
May-Fran Engineering, Inc.  
Michigan Crane & Conveyor Co.  
Monarch Rubber Co.  
Mohr-Truck Co.  
Northern Engineering Works  
Ohio Locomotive Crane Co.  
Orton Crane & Shovel Co.  
Plymouth Locomotive Works, Div., Fate-Roof Heath Co.  
Reading Crane & Hoist Corp.  
Ready-Power Co.  
Richards-Wilcox Manufacturing Co.  
Rockford Products Co.  
John A. Roebling's Sons Co.  
Ross Carrier Co.  
Round Chain Companies  
Silent Hoist & Chain Co.  
Standard Conveyor Co.  
Tiew Shovel Co.  
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You advertise in STEEL to reach  
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# Technical Outlook

**IRON IN TITANIUM**—Research just reported shows that 0.5 per cent iron has little effect on room-temperature mechanical properties of alpha titanium alloys. Titanium sheets of variable iron content generally comply with commercial sheet specifications, and weld bend and sheet bend values are equivalent. In sponge production, a limited amount of iron invariably enters the metal batch. Relaxation of iron specs is favorable for improved economics and maximum metal production.

**NEW DIVIDEND**—Add resistance to corrosion in soils to the advantages of low-alloy, high-strength steels. National Bureau of Standards buried specimen plates at 15 different sites for periods up to 13 years. Unearthed steels containing 4 to 6 per cent chromium generally lost about half as much weight as plain steel under same conditions. Least pitting was found where molybdenum was added to chromium.

**MICRORADIOGRAPHY**—New light is being shed on segregation and porosity in alloys by examination of X-ray plates under the magnification of a microscope. Known as microradiography, the technique has the advantage of revealing the depth of microconstituents through variations in density. Metallography is only partially adequate for the study of metals. It's limited to the two dimensions in the plane of observation.

**MORE MANGANESE**—Sometime next month a pilot plant near Pittstown, Pa., will start to recover manganese from waste open hearth slag. If everything works out Mangaslag, Inc., plans to build commercial plants to treat some 8 million tons of waste slag accumulated at steel plants. Pilot plant will handle 500 tons of slag daily to produce spiegeleisen, with about 20 per cent manganese and 4 per cent phosphorus. Next step is to remove excess phosphorus by selective oxidation in a basic lined Bessemer converter. Final remelting gives a product contain-

ing 80 per cent ferromanganese with phosphorus below 0.35 per cent. Bureau of Mines estimates process can supply at least half the steel industry's requirements.

**MEASURES AUSTENITE**—Dilatometer, German apparatus that follows isothermal transformation of austenite on basis of volume change, is being pioneered in salt bath quenching at Ajax Electric Co., Philadelphia. Theory is hardness test alone lacks sensitivity to show last traces of retained austenite.

**STAINLESS POWDER**—Chrysler's expanded Amplex plant, Detroit, is volume producing powder metallurgy products. Typical item carrying the Oilite Stainless Steel tradename is an exhaust-manifold, heat-control valve bearing. A. J. Langhammer, Amplex president, says bearing has better corrosion resistance than bronze. Its tensile strength is 40,000 psi.

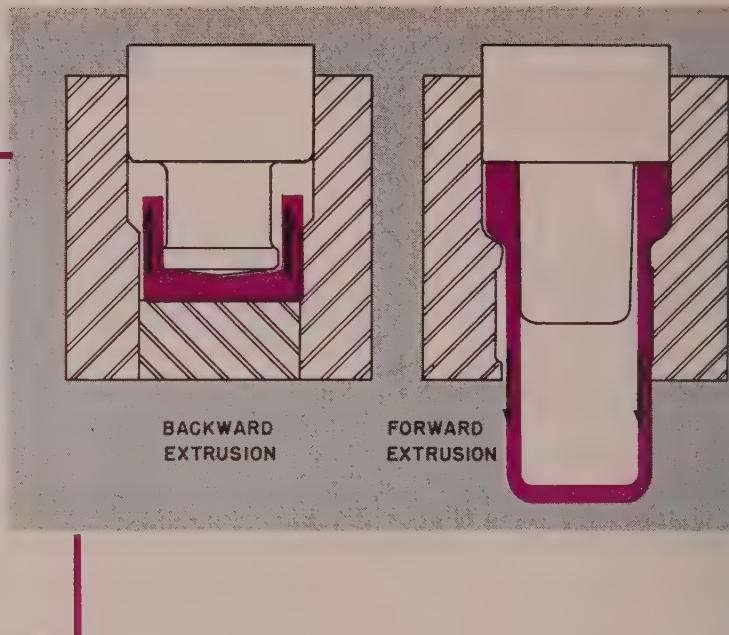
**SMALLER HORSES**—Final approval of standards for NEMA's ac motor re-rating program shifts design and manufacturing gears into high. Biggest producers of the popular, large-volume, 1 to 30 hp frame sizes, GE and Westinghouse are well into the prototype stage and should be marketing some smaller sizes around the end of the year. Users will note more changes in motor exteriors. Working parts inside have experienced gradual size reduction, thanks to better insulation, core steels and die casting. Putting these smaller, better motors into more-realistic-sized frames is one of the big reasons behind the standards change.

**CERAMIC OUTLOOK**—Within two years, 85 per cent of all exhaust systems on civilian aircraft engines will be coated with high-temperature ceramics . . . Robert A. Weaver Jr., president, Bettinger Corp., Waltham, Mass., recently predicted.

Drawings at right, courtesy Parker Rust Proof Co., Detroit, show difference between forward and backward extrusion. Key is direction of metal flow with respect to punch movement



By ROBERT F. HUBER  
Machine Tool Editor



# Cold Extrusion of Steel . . . A MILITARY HERO IN CIVILIAN GAR

Tooling is still a problem on some applications, but the problem is being solved as cold extrusion expands its field to new applications and new steels

COLD EXTRUSION of steel cut its teeth on ordnance work, but it's ready to take a man-sized bite into civilian-goods production.

Every major automobile maker is experimenting with it. Some automakers either have cold extrusion of steel running on a semi-production basis in their plants, or they are buying extruded parts from suppliers. Many of these suppliers are cold extruding full tilt on proved production schedules.

**Future Star** — All major auto producers count on cold extrusion as one of their main production methods for the future. One of the Big Three is reportedly planning a new plant which will be devoted exclusively to the steel extrusion-at-room-temperature method.

Piston pins, transmission shafts, shock absorber tubes, bolts, hydraulic valve lifters, and many other parts are produced now or will be produced by the method.

**War Baby**—During World War II, the Germans, masters of the "ersatz," needed a process which would produce serviceable shell cases from garden-variety steels with very little metal waste.

Cold extrusion of steel was their answer to a crying need. In general production they only went up to about the 20 mm shell in size, but they turned them out by the thousands. Their ordinary steels improved sufficiently during extrusion to meet the physical requirements of service—and metal loss due to chips or to scrap dropped radically.

After the War, this country sent a technical-intelligence team to Europe to scout out the details of the process. Information brought back enabled the U. S. to start its own research and development program, and we have since developed the method far beyond the point at which we picked it up. A 155

mm shell has been cold formed—and no one thinks that's the limit.

**What Is It?** — Cold extrusion means the plastic deformation of substance, in this case steel, under compression. It differs from other forming methods in that they work the metal under tension. Thus, according to theory, and now—practice, steel is extrudable when it's subjected to compressive stresses exceeding its yield strength while still at room temperature. Pressures can be up around 350,000 psi.

Cold extrusion is divided into two categories, forward and backward. Forward extrusion takes place when the metal is forced through a hole in a die. Metal flow is in the same direction as the punch.

Backward extrusion occurs when the metal is forced out around a punch and back between the punch and the die wall. Metal flow is in the direction opposite to punch movement.

**Potential**—Two large fields offer themselves as fertile ground for extrusion of steel to take root. One of them covers the count number of parts which is now produced on screw machines, and which, because of their design and production requirements, could be extruded.

The second field deals with operations more closely allied with the new process. It's in the area of hot forming of steel into cylindrical shapes. In both these fields, cold extrusion will cut the number of operations by as much as one-half.

**Pluses**—Big advantages of the method are the savings in metal used, close tolerances which can be held, fine workpiece finish and the reduction of time or operations to do a job.

Part design, die and punch design, lubricant application and press selection are the key facets of successful cold extrusion of steel. The four go together like a quartet. When one is wrong the performance is sour.

**Where to Start**—First problem for anybody considering cold extrusion of steel is where to apply it. First of all, production requirements, metal savings or a combination of these factors must offset the cost of tooling up for the process.

Next, the part shape must be extrudable. Starting point is always cylinders, either solid or hollow. With the right technique, you can complicate the cylinders and get away with it, but the simple cylinder is the easiest to extrude. Starting from this pure cylinder, extrudable variations include hexes, squares and combinations of assorted lands, grooves and shoulders. Practical knowhow in die design, however, is an essential for these variations.

**How Big?**—Backward extrusion of steel carries a practical limit on length of part to diameter of about four to one. If the part is 1-inch in diameter it should be not more than 4 inches long. If the part is longer than that, you'll need another operation, probably either a forward extrusion or a draw.

Length-to-diameter ratio for forward extrusion can probably go as high as 20 to 1 times the diameter of the slug.

## CHECK POINTS FOR COLD EXTRUDING STEEL

### SHAPE OF YOUR PARTS

- 1. Cylinders, solid or hollow, is the starting point
- 2. Variations from cylinders include squares, hexes, and combinations of lands and grooves
- 3. Length-to-diameter ratio limits per pass: 4 to 1 for backward; about 20 to 1 for forward

### TOOLING FEATURES

- 1. Both dies and punches must be well supported
- 2. Tool hardness should be in the 60 to 70 Rc range
- 3. Finish must be smooth—at least 10 microinches
- 4. Avoid square corners and flat-bottom punches if at all possible. Provide for knockout

### EQUIPMENT YOU'LL NEED

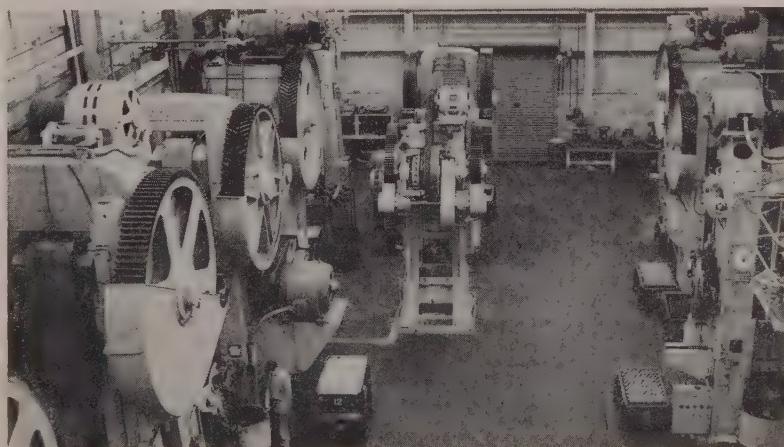
- 1. Shearing, punching or sawing equipment for blanks
- 2. Press capacity of about 125 tons psi punch area
- 3. Phosphate coating and lubrication system

**Go How Far?**—Although some reductions of as high as 85 to 90 per cent have been achieved in one backward extrusion pass, a commercial limit of about 65 per cent reduction in cross-sectional area seems feasible. This can be somewhat higher for forward extrusions.

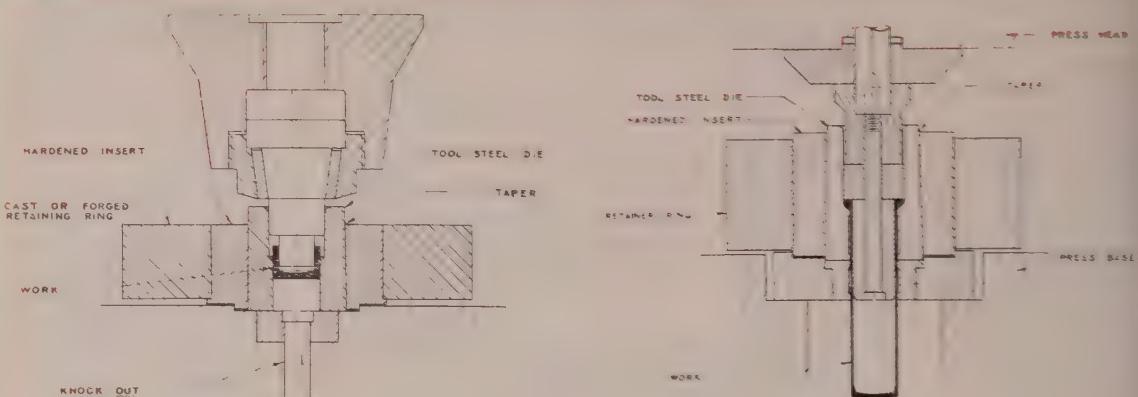
Low carbon steels offer the fewest headaches in cold extrusion.

Steels in the range of C 1010, 1020 and 1028 have been successfully extruded on a commercial production basis. Some of the 4000-series steels have also been used. Limiting factors will be the operation performed, per cent reduction and the ability of die and punch to stand the load.

One midwestern manufacturer is said to have cold extruded 6100-



General view of pilot production line at Heintz Mfg. Co., Philadelphia. Now concentrating on Ordnance work, the company expects shift to commercial



Die rings of tough steel hardened to about 70 Rockwell C should have 1 to 2 degree taper on side. Die fits mating taper in steel ring. Ring is shrunk on to preload die

Bottom of punch is conical with a 2-degree minimum side angle. Punches and dies have about 0.010-inch clearance where bearing is not important. This reduces friction

series steel on an experimental job. It seems certain, however, that no tools could work this steel successfully on a continued-production basis.

**Transformation**—If a job calls for a particularly high alloy, there's one thing to keep in mind. Cold working improves the physical properties of some steels markedly. It's sometimes possible to substitute a lower alloy steel for a high one, and get the same or better physical properties in the finished part.

At Heintz Mfg. Co., Philadelphia, tests showed the tensile strength of ingot iron went from 43,000 psi in the normalized and annealed

state to 115,000 psi when cold extruded in a single operation to an 80 per cent reduction. Elongation also changed from 45 per cent in the annealed condition to 18 per cent elongation at 20 per cent reduction. At 80 per cent reduction, elongation still was 10 per cent.

Common 0.10 per cent carbon steel has a yield strength of from 95,000 to 110,000 psi at 75 per cent reduction as compared to only about 35,000 psi in the annealed state.

**Metal Miser**—Big bonus to cold extrusion is the terrific saving of metal. At Braun Engineering Co., Detroit, automotive parts are being cold extruded on a produc-

tion basis. When one part was made on a screw machine, the cost of stock alone was \$25 per 1000 parts. Labor, overhead and profit all cost extra. Now the same job is done by cold extrusion, and total cost to the customer is only \$32. Metal savings are a large part of this difference.

On the 155 mm shell previously mentioned, the savings in metal are even more obvious. The billet of C 1010,  $7\frac{1}{2}$ -inch round bar from which the shell is made weighs about 79 pounds. The finished shell weighs 76.12 pounds. Billets of 1050 from which the shell is conventionally hot formed, machine and heat treated, weigh about 13 pounds.

**Stock Checks**—Condition of the stock for cold-forming blanks will be more critical for some parts than for others. Where the alloy content is high and extrusion force must be great, stock should be of high quality. Bar stock which has been ground is used in some cases. The more perfect the surface, the smaller the chance for stresses to localize and give trouble.

In almost all cases the diameter or thickness variations should be watched closely. This will affect the volume of metal extruded. This becomes critical in backward extrusion when a closed die is used in which the metal completely fills the cavity between die and punch.

Slugs or blanks can be punched, sheared or sawed. Sawing is best for the parts which must be re-



After severe backward extrusion, parts are recoated and given a deep draw. Pennsylvania Salt Mfg. Co., Philadelphia, photo shows how phosphate coating plus lubricant results in high surface finish, typical of cold forming

rked. Also, as A. H. Harris, Dex Corp., Detroit, points out, if the slug is sawed, the slug anneal can be omitted and you can go right to coating. If the slug is sheared or punched, anneal at 1150° to 1200° F for stress relief. Another factor is that less metal is scrapped by sawing than by punching.

#### TOOLING

While no one phase of the cold extrusion method can be picked out as the most important of all, it is generally conceded that the limiting factor to the method is the tooling. In the first place, apparently, the real secret to success in a steel cold extrusion job lies in the application of tools to the job. Second, the dislike which cold extrusion now has for the high-carbon steel alloys can be attributed to the inability of tool steels to take the beating.

For the present, at least, most everyone doing cold extrusion of steel feels that you can extrude any steel alloy providing you can find tool steels for the work.

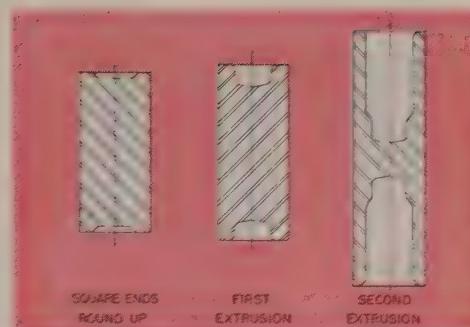
**Celebrity**—Thus, though this is certainly not the only important phase of the operation, dies and punches are usually the most widely publicized of all extrusion problems.

In considering the properties of die steel, it must be remembered that many factors affect the performance of a die. Incorrect design, faulty hardening or tempering, for instance, can destroy the advantages of the most superior die material.

**Must Be Good**—Because of their importance, dies must be made of high-quality steel, free from defects. Die steels are put into service in a harder condition than most other types of steel because both wear resistance and compressive strength must be high. Normal range of hardness for steel cold extrusion dies is from 60 to 70 Rockwell C.

High carbon content is a must, since hardness of the martensitic structure developed on quenching is proportional to the carbon content in solution at the hardening temperature. Carbon also gives rise to carbides, which are hard and extremely wear resistant.

**Low Heat**—Cold-work steels are given only low temperature tempering treatments before being put



Shock absorber tube—second operation is a forward-backward extrusion



Drawing shows how shape is formed by three double-backward extrusions



Cold formed cup—backward extrusion. Stock is sawed from hot-rolled bar

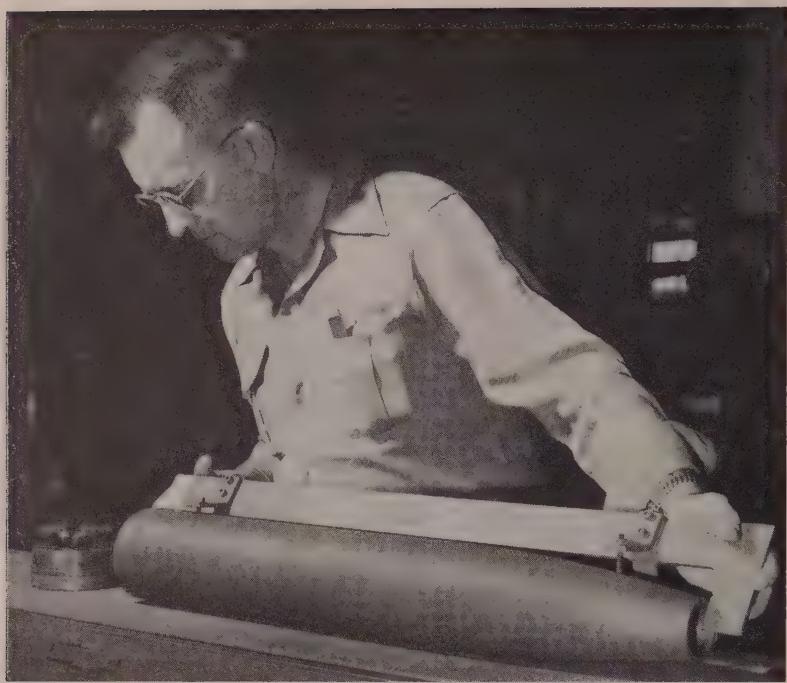


CO<sub>2</sub> flask formed by backward, forward extrusions, two draws then necking operation and threading

Automotive stud bolt is a forward extrusion with final upsetting for the head. The part is then machined



Photographs courtesy Parker Rust Proofing Co., Detroit  
Drive shaft is extruded in horizontal press. In each step, die rings approach from opposite directions. The part is now in production



Production of 4.5-inch rockets at Pontiac Motor Div., General Motors Corp. utilizes backward cold extrusion. Stock is equivalent to SAE 1015 hot-rolled

into service. Aim is to remove internal stresses without reducing the as-quenched hardness.

Cold-work die steels often have low ductility and are brittle. Although a punch must have some give, its resistance to permanent deformation must be high. Ability of the steels to absorb energy without yielding must be high.

**Sample Steels** — A water-hardened tool steel for cold extrusion dies may have the following composition: C—1.1%, Cr—0.3, Si—0.35, Mn—0.35, V—0.1. Oil hardened steel for punches has this composition: C—0.55, Cr—1.5, Ni—4.5 W—0.9, Si—0.3, Mn—0.4. H. Fischer, Kabel and Metallwerke Neumeyer A.G., points out these steels have been tried and proved acceptable. They indicate a range of steels which should be applied.

Periodic stress relieving of the die steels at temperatures less than their temper draws seems to correct strains which would cause surface failure. This practice can substantially lengthen die life, according to E. V. Crane, E. W. Bliss Co., Canton, O.

Carbide is being used on both punches and die rings. It is extremely wear resistant, fairly brittle and does not require final heat

treat. On one run, more than 250,000 pieces have been obtained from a single carbide punch. At last reports the punch was still going.

In some cases, chrome-plated punches have also given excellent service life.

**Machining** — After hardening and tempering, die steels must be ground and may be lapped to finished size. All die steels are difficult to grind. Soft grinding wheels with an open grain are used to prevent damage in the form of grinding cracks and burning.

Finish on punches and dies must be good to reduce friction to a minimum. About 10 microinches is a good norm, although even smoother than that will be necessary for some operations. When possible, the finish lines should be made to conform to the direction of metal flow, reducing drag. A bonus from this high tool finish is the remarkable finish achieved on the work, often superior to that possible by machining.

**Needs Support** — In the design of dies and punches, one factor looms uppermost in importance. Both dies and punches must be well supported. Since the tool steels themselves are hard and brittle, lower carbon steels are used to back up the

punches and particularly the die rings.

Die ring should be mounted in a 4140 or equivalent steel ring with mating taper. Steel ring is shrunk on die ring to preload die. A ring of 1020 or equivalent steel is then fitted around this assembly for final ruggedness. Die rests on pressure plate which transfers forces to lower part of the press. Whole assembly is rigidly bolted to the press to prevent shift and resultant tool breakage.

**Use Radii** — On backward extrusion, flat-bottomed punches should be avoided whenever possible. One to two-degree minimum angle is recommended. Corners of the punch and die should be rounded for additional ruggedness. About 1/64-inch is a minimum. Twice that is better.

Backward extrusion punches should be relieved above the press track to offer minimum resistance to the flow of metal between punch and die. Minimum clearance here should be about 0.010-inch. This also can be accomplished by tapering the punch.

**Closed Die** — These punches can often be piloted in the die. This prevents any cocking and adds to punch life. If the punch is piloted in the die and the extruded steel fills the cavity, the die is considered closed and several new precautions must be taken.

First, the size of the slugs must be uniform so volume of metal is constant. Any wide variation here is likely to cause either the punch or the die or both to fracture. Also the stroke of the press must be closely controlled to prevent an overstroke on the downward motion. This would result in the same tool failure.

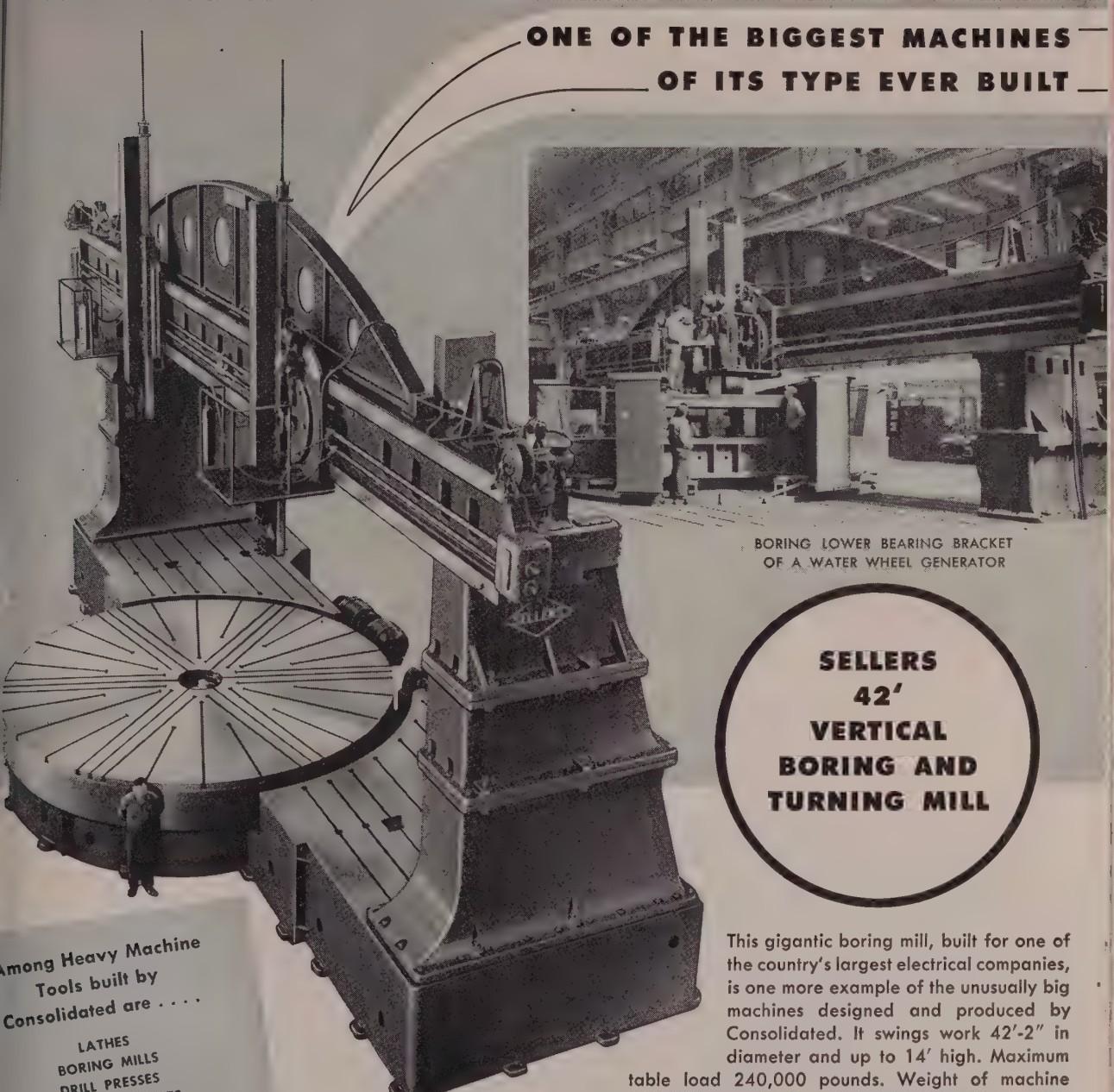
Reason for using the closed die is to present a finished shoulder or surface on the top of the part. It eliminates another machining operation, but is a bit tricky to control.

Die-ring diameter, depending on severity of operation, should be up to three times the diameter of the hole. Exterior of die ring should have a 1 to 2 degree taper as shown in the illustration. Working parts of both die and punch should be designed for easy and inexpensive replacement.

Same general rules of die de-

(Continued on p. 109)

ONE OF THE BIGGEST MACHINES  
OF ITS TYPE EVER BUILT



BORING LOWER BEARING BRACKET  
OF A WATER WHEEL GENERATOR

SELLERS  
42'  
VERTICAL  
BORING AND  
TURNING MILL

Among Heavy Machine  
Tools built by  
Consolidated are . . .

LATHES  
BORING MILLS  
DRILL PRESSES  
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DRILL AND TOOL  
GRINDERS  
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AND OTHER  
SPECIAL MACHINES

This gigantic boring mill, built for one of the country's largest electrical companies, is one more example of the unusually big machines designed and produced by Consolidated. It swings work 42'-2" in diameter and up to 14' high. Maximum table load 240,000 pounds. Weight of machine 700,000 pounds. Overall height 42', 10' of which is below the floor level. Crossrail is 58' long.

Other huge Consolidated Machines, recently built or in process, include a Betts Special Boring and Facing Machine, weighing 300,000 pounds, and a Sellers Combination Planer-Milling Machine, weight over 645,000 pounds; together with Betts-Bridgeford 96" Geared Head Lathes, Sellers Horizontal Boring, Drilling and Milling Machines and Hilles & Jones Plate Edge Planers weighing 250,000, 275,000 and 120,000 pounds respectively. Whether your production problems demand big or standard type machines, Consolidated is prepared to meet your requirements.

BUILDERS OF HEAVY DUTY MACHINE TOOLS SINCE 1848

BETTS • BETTS-BRIDGEFORD • COLBURN • HILLES & JONES • MODERN • NEWTON • SELLERS

**CONSOLIDATED**  
**MACHINE TOOL CORPORATION**

SUBSIDIARY OF FARREL-BIRMINGHAM COMPANY, INCORPORATED

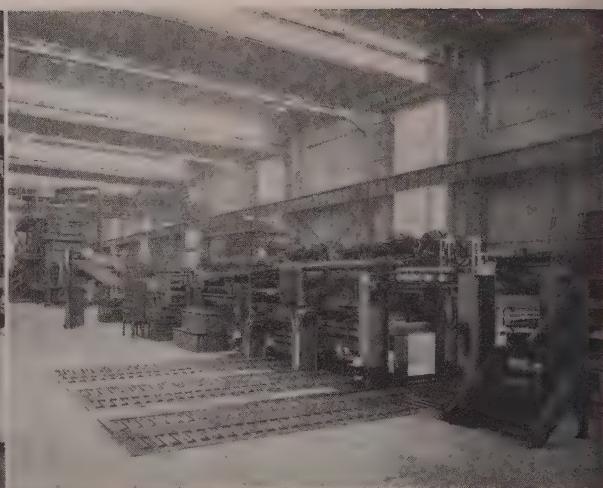
ROCHESTER, NEW YORK



## PROGRESS IN STEELMAKING



Reduction takes place in 5-stand cold reduction mill.  
Coils weighing 30,000 pounds are coated with palm oil



Coils are tinned in continuous strip form at rated top speed of 800 fpm for depositing  $\frac{1}{2}$  pound per base box

# British Streamline Tin Plate Lines

**U. S. know-how and equipment exported to help build the Trostre integrated plant. Covering 746,000 sq ft, it has rated output of 500,000 tons of tin plate per year**

EXPORT of U. S. know-how and equipment is playing a key role in Great Britain's program to regain its position as an international producer of steel.

Typical British customer is the Steel Company of Wales Ltd., which operates four completely integrated plants in the South Wales area, including the Abbey, Margam, Port Talbot and, more recently, the Trostre works.

Trostre is a tin plate mill covering 746,000 sq ft. Its rated output is 500,000 tons of hot-dipped and electrolytic tin plate per year. Demand for still greater production has prompted the British concern to let contracts for the construction of a similar cold reduction plant at Velindre, which is 15 miles from Port Talbot and between the Abbey and Trostre works. Plant is expected to be completed in 1955.

Equipment for the Velindre works will be built in England to U. S. designs. However, at the Trostre plant, you'll see such familiar names as United Engineering & Foundry Co., Heppenstall Co., both of Pittsburgh, and Wean Engineering Co., Warren, O.

**Helping Hand**—United figured prominently in planning and engineering at Trostre. Both it and Heppenstall also supplied equipment. Wean did engineering work on the pickle line and installed two acid-type Ferrostan electrolytic tinning units.

Abbey plant, which was remodeled and expanded in 1951, operates eight 200-ton open hearth furnaces. Its inventory of equipment includes a 45 x 115-inch United slabbing mill with edger and an 80-inch, 11-stand, continuous hot strip mill. On the drawing board is an 80-inch hot strip mill to be built in England to U. S. design.

Margam and Port Talbot works, both of World War I vintage, operate six 100-ton open hearth furnaces each. Currently, plans are being made to add four furnaces to the existing ones at the Margam works.

**Trostre Works** — This plant is geared for the materials handling efficiency of its U. S. prototypes. Continuous production starts with the receipt of 15,000-pound, hot-rolled coils from the Abbey plant,

which is less than 26 miles by rail. Coils have maximum gage of 0.093 inch with maximum width of 38 inches. Stored in a bay next to the pickling department, they are transferred by cranes, equipped with Heppenstall-type tongs, to the continuous pickling line.

By means of feeding equipment, coils pass to an uncoiler, where they are subjected to reverse bending to break up surface scale and prevent kinking in looping pits.

After levelling, a shear trims coil ends. Then the trailing end of one coil and the leading end of the following are alternately butt welded and stitched. Time lag is compensated for by the usual looping pit.

**Acid Line**—Entry speed of 1000 fpm is cut to 500 fpm for the trip through five acid tanks, which are lined with  $\frac{1}{4}$ -inch rubber sheeting and 9 inches of acid-resisting brick. Tanks are hooded and equipped with exhaust systems.

From acid baths, strip goes through a cold-water spray, hot water rinse and, finally, a steam-heated air blast for drying. The solution of about 20 per cent sul-

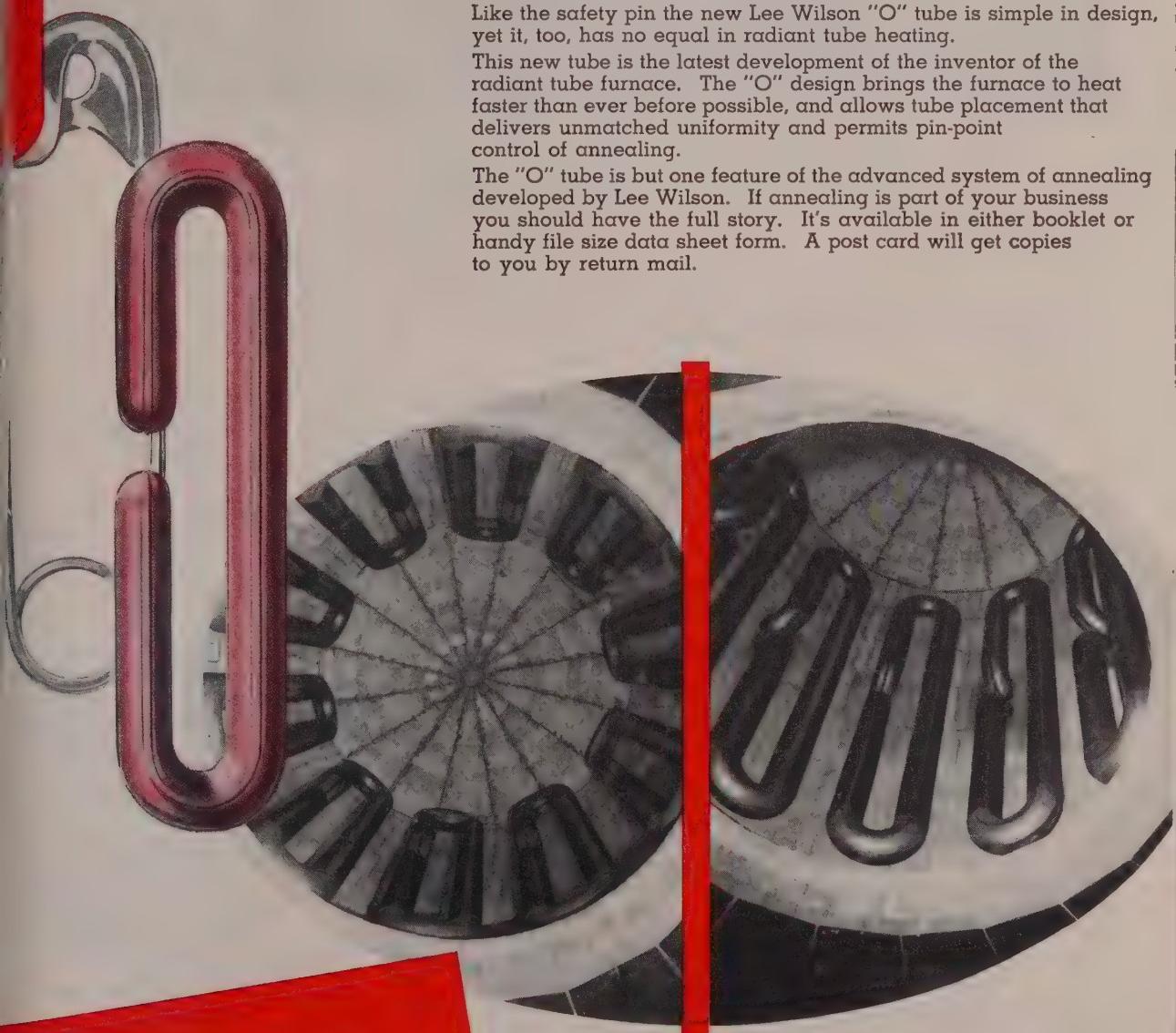
# imple -- LIKE A SAFETY PIN

The safety pin was a simple invention — yet, as any new mother will testify, it has no substitute.

Like the safety pin the new Lee Wilson "O" tube is simple in design, yet it, too, has no equal in radiant tube heating.

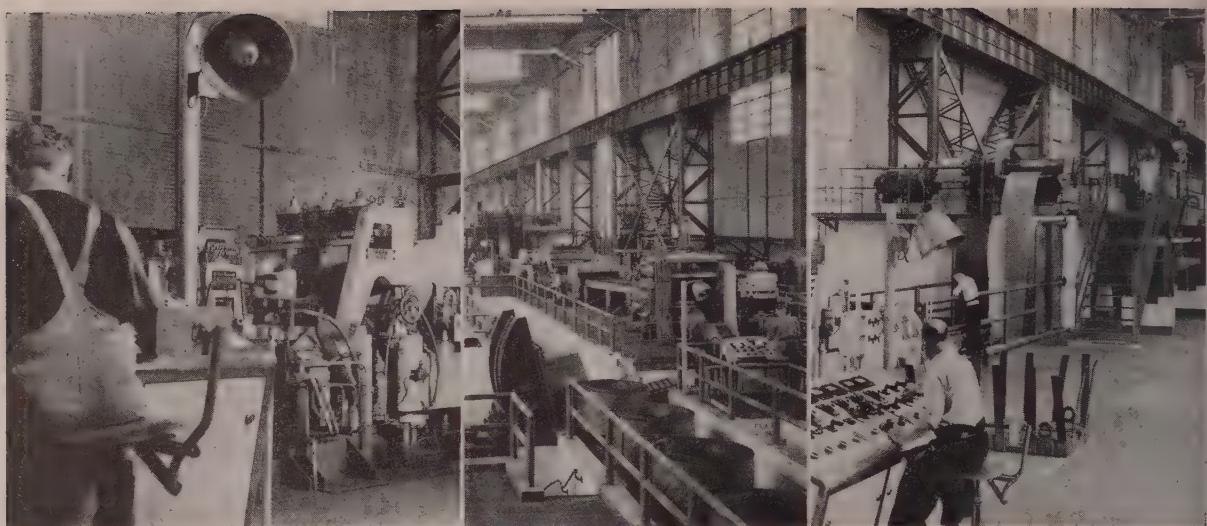
This new tube is the latest development of the inventor of the radiant tube furnace. The "O" design brings the furnace to heat faster than ever before possible, and allows tube placement that delivers unmatched uniformity and permits pin-point control of annealing.

The "O" tube is but one feature of the advanced system of annealing developed by Lee Wilson. If annealing is part of your business you should have the full story. It's available in either booklet or handy file size data sheet form. A post card will get copies to you by return mail.



*Lee Wilson*

ENGINEERING COMPANY, INC.



Alternate welds and stitches are made before strip enters pickler. Trostre continuous pickle line has five acid tanks. Speed is 500 fpm. Exit end of Trostre pickling line is at right. Next operation is removing stitching

phuric acid is fed continuously into the exit tank and cascades through the other four against the flow of the strip. Acid solution is heated by submerged steam jets. Temperatures are controlled by thermostat.

**Doubling Up** — Next, stitched ends are cut out, and resulting 30,000-pound coils are coated with palm oil to prevent corrosion and provide lubrication during cold rolling.

Rewound, the coil passes before an automatic weighing machine and then goes to storage. Side trimmings from strip are baled in the basement and returned to the Abbey works as scrap. This is general practice throughout the plant.

**Reduction** — Reduction of strip takes place in a United, 5-stand, cold reduction mill. Stands, which are in tandem, have work rolls 21 inches in diameter by 48 inches long, with back-up rolls 53 inches in diameter, 47 inches long. Top speed of the mill is 4500 fpm. Under test, it was operated between 4000 and 4200 fpm. However, motors are adjusted for speeds equivalent to 5000 fpm.

Coils start through the mill on an entry conveyor that feeds the coil by rotating it and directing its leading end into the entry guides of No. 1 stand. Rotating rig depresses hydraulically and ejects coils automatically into the coil box for entry into the mill.

As strip leaves the mill, a belt wrapper engages the leading edge in a tension recoiler. Coil is stripped from the reel, ejected over a ramp and weighed as it passes over an automatic recording scale.

**Degreasing Lines** — Following cold reduction, all traces of palm oil are removed from the strip before annealing. This is done in either of two United electrolytic cleaning lines, having a maximum speed of 2000 fpm.

Cleaning is a continuous operation. Leading end of each coil and the trailing end of the preceding are sheared and seam welded at the entry end of the cleaner. Strip then passes through a hot caustic washing tank, first brush scrubbing unit, main electrolytic caustic cleaning tank, second brush scrub and then is immersed in hot water. After strip is hot-air dried, it is wound on a tension roll. Coils are about 54 inches in diameter and weigh approximately 15,000 pounds each.

**Annealing** — Annealing department has five batch-type annealing furnaces and 12 bases. Each base has two rows of four hearths each. Furnaces are direct oil fired.

After loading, a stainless steel cylindrical cover is placed over the top of each stack and the bottom is sand sealed. A portable furnace is lifted by crane and placed over the base. Temperature of each stack and furnace itself is regulat-

ed by automatic recording controllers.

Coil oxidation is prevented by circulation of inert gas in the inner covers. Burnt gases are exhausted through three ports centrally located in the floor of each base. Coils are placed on racks for complete cooling before temper rolling.

**Temper Rolling** — Two United 4-high, 2-stand mills do the job. Motor drives for each stand are rated at 1000 hp, with maximum delivery speed of 4000 fpm.

Coils from the annealing department are transported on a pallet-type conveyor and discharged to an uncoiler. Strip is threaded around entry tension rolls, through the two stands and around the exit tension rolls. It is then automatically engaged on the rewinding wheel.

After recoiling, coil is stripped off reel and taken by conveyor to coil-preparatory lines if destined for electrolytic tinning in the Wean lines or to the coil cut-up lines if scheduled for hot dipping. Plant has nine two-way hot-dip, tinning lines.

**Electro-tinning** — Ferrostan units coat coils in continuous strip form at a rated maximum speed of 800 fpm for depositing  $\frac{1}{2}$  pound per base box coating. Speeds are correspondingly reduced for heavier coatings.

(continued on p. 104)

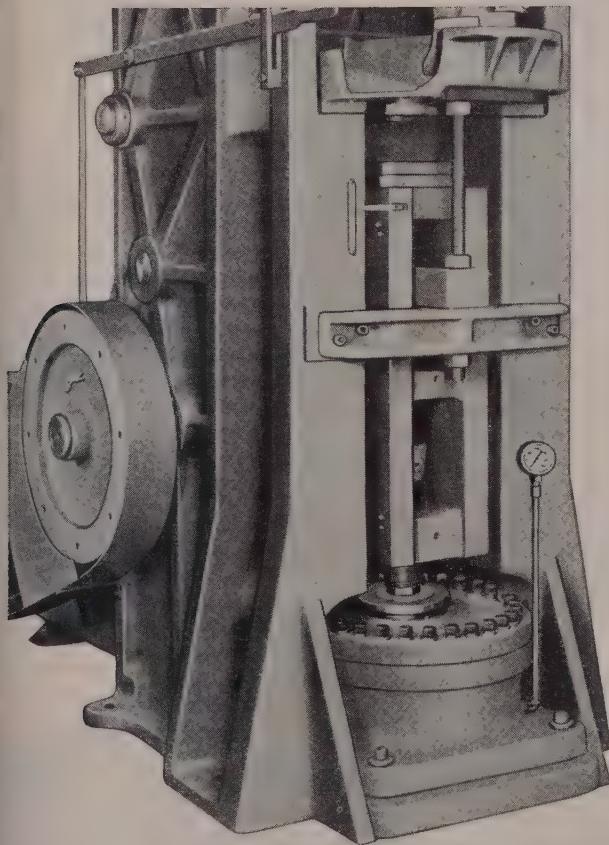
# Hydraulic fluid keeps cool while 15 powdered metal parts are compressed per minute under 150 tons pressure



Largest and most powerful of Kux powdered metal presses is this 18,000 lb. Model No. 82. Applying 150 tons pressure to the material, it automatically forms 15 parts per minute in diameters up to 6".

Mounted directly behind the main frame is a complete, self-contained hydraulic unit which delivers 1000 psi to the hydraulic ram—the latter controlling the lower punch during pressing. To make certain that pressure capacity remains uniformly high—*by keeping the hydraulic oil properly cooled*—Kux Machine Company furnishes a Ross Type BCF Exchanger. In this simple, dependable way, lost capacity from overheated, thinned fluid is safely and surely prevented.

## KUX PRESSES USE ROSS EXCHANGERS



Safeguarding production capacities of metal working machines is a steady job for Ross Exchangers . . . particularly the rugged, compact, copper and copper alloy "BCF." The fact that it is readily available as a completely pre-engineered, fully standardized unit has long established it as first choice of both makers and users of die casting machines, powdered metal and metal drawing presses, extrusion presses, welders, stoker drives, gear shapers, compressors, engines, turbines and related machines.

For full details, request Bulletin 1.1K5.

### KEWANEE-ROSS CORPORATION

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

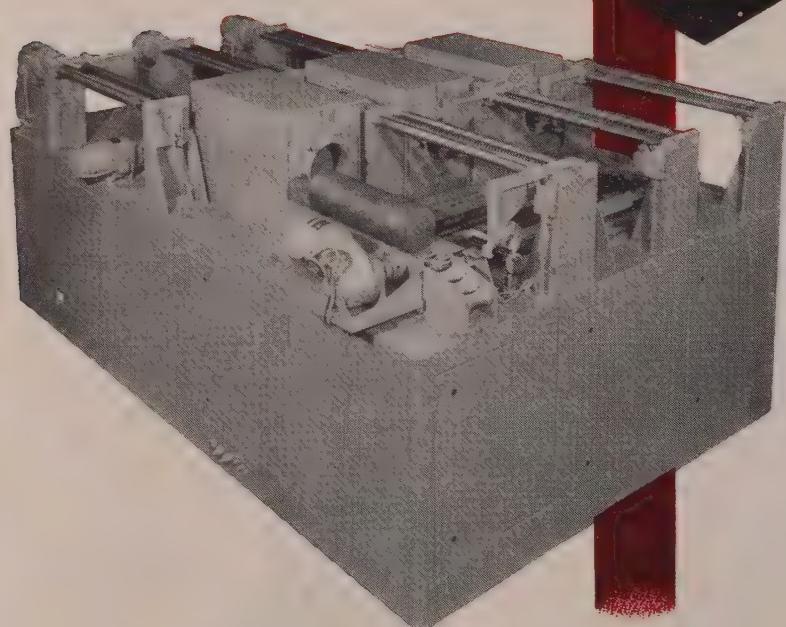
1431 WEST AVENUE • BUFFALO 13, N. Y.  
In Canada: Kewanee-Ross of Canada Limited, Toronto 5, Ont.



the first  
completely  
universal....

# BILLET HEATER

60-cycle  
**induction**

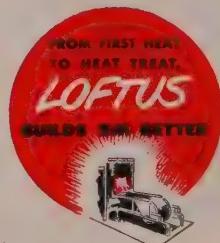


THIS Loftus Universal Thermo-Induction furnace is the most flexible 60-cycle billet heat ever designed. You can heat every non-ferrous metal, in the same furnace, either consecutive or simultaneously, to its respective forging or extrusion temperature. The unit maintains high

efficiency, constantly, even when heating short-length billets.

Loftus Thermo-Induction gives you the most practical, dependable, and efficient method of heating non-ferrous metals. You achieve uniform heating in a matter of seconds. Production is continuous, and completely automatic. The press operator controls the furnace. Separate, positive control of each coil is at his fingertips.

The Loftus 60-cycle Thermo-Induction Heater illustrated is designed to heat copper, brass, aluminum, and cupro-nickel for extrusion purposes. The unit is readily adaptable to forging and rolling processes. It is possible, with this billet heater to heat a 4" dia. Aluminum billet to 800° F., an 8" dia. brass billet to 1550° F., and a 10" dia. cupro-nickel billet to 1950° ALL AT THE SAME TIME IN THE ONE FURNACE. Each billet is heated independently . . . from a single control panel.



*Send Today* for Booklet describing Loftus  
60 Cycle Induction Heating in Detail

# Loftus

ENGINEERING CORPORATION  
Designers and Builders of Industrial Furnaces

610 Smithfield Street • Pittsburgh 22, Pennsylvania



# NEW

# PRODUCTS and equipment

Reply card on page 93 will bring you more information on any new products and equipment in this issue

## Pressure Reducing Regulator

. . . input 2000 psi; output 50-300

This regulator, weighing 8 ounces and measuring  $1\frac{1}{8} \times 1\frac{5}{16} \times 2\frac{21}{32}$  inches, takes inlet pressures up to 2,000 psi, has adjustable output pressure from 50 to 300 psi, and handles flows up to 300 liters



per minute. Designed for air or oxygen systems, the output pressure variation from zero to full flow is approximately 15 per cent. Regulator will handle larger than 300 lpm flow if pressure drop from zero to full flow is allowed to drop more than 15 per cent. Aro Equipment Corp., Dept ST, Bryan, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 1

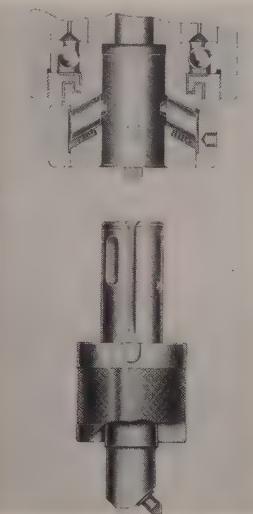
## Quick-Change Precision Spindle

. . . tools accurate to 0.0001 inch

With this high precision spindle, tools can be changed in less than 10 seconds with such accuracy that hole sizes may be repeated within plus or minus 0.0001 inch without resetting the boring tools. Tools are locked in the spindle by two cam-ring-actuated plungers which draw the flanged adapter shank firmly against the ground nose of the spindle. A spanner wrench is used to rotate the cam ring a fraction of a revolution to lock or unlock the tool.

Spindle can be adapted to ma-

chines in the field; adapters are available to accommodate No. 1, 2, 3 and 4 Morse taper; 5, 7, 9, and 10 Brown and Sharpe tapers, No. 40 NMTB. Taper and straight bores from  $\frac{1}{4}$  to  $\frac{1}{2}$  and  $\frac{1}{2}$  to  $1\frac{1}{4}$



inches in eighths can be accommodated. Fosdick Machine Tool Co., Dept. ST, Cincinnati, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 2

## Tank Float Switch

. . . simple, field-adjustable

Automatic control of the liquid level within closed tanks is achieved with this new screw-in tank float switch for condensate



pumps. Flexibility of the switch reduces stocking problem to a minimum. Float position can be changed from right to left hand;

contacts may be converted to either open or close on liquid rise. Float travel may be adjusted in the field by loosening two screws and moving float stops to the desired position.

Switches are available for 110-220 volts and 440-550 volts. Structure is two pole, double break, silver-to-silver, visible and vertical contact. Unit is built to NEMA I specifications. Square D Co., Dept. ST, Industrial Controller Division, 4041 N. Richards St., Milwaukee 12, Wis.

FOR MORE DATA—CIRCLE REPLY CARD NO. 3

## New Ribbon-Type Indicator

. . . no illumination needed

This new indicator is especially suited to panel applications which require continuous indication of valve position or variables such as liquid level. Unit receives pneu-



matic measurements from a transmitter located at the process. This force is applied to a sensitive receiver bellows which, through a lever and stainless steel tape arrangement, rotates two lightweight drums.

The bright-colored nylon tape, wound on the drums, is thus drawn

behind a glass pane on which scale graduations are printed.

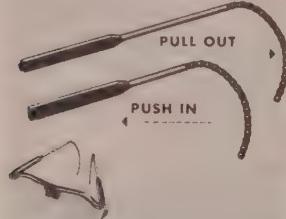
Since it measures only  $\frac{3}{4}$  to  $4\frac{1}{4}$  inches, the instrument fits easily into graphic panel symbols. Available with single or dual indicating scales, it can be adjusted for direct or reverse response to measurement as desired. Foxboro Co., Dept. ST, Foxboro, Mass.

FOR MORE DATA—CIRCLE REPLY CARD NO. 4

## Adjustable Safety Glasses

... better fit, greater comfort

Plastic Retrax temples which telescope in and out for perfect fit permit wearer to lengthen or shorten the ear piece to fit perfectly to his face. Hook end of the ear piece is also made adjustable



by molding strong plastic into lengths of ball-chain which can be bent to any comfortable position. These features make the goggles fit more closely and prevent them from falling off while in use. Flexibility eliminates the need of stocking frames with temples of different lengths to fit various workers. Watchemoket Optical Co., Dept. ST, 232 W. Exchange St., Providence 3, R. I.

FOR MORE DATA—CIRCLE REPLY CARD NO. 5

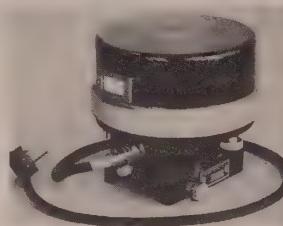
## Back Reflection Camera

... for precise x-ray diffraction

Precise determinations of atomic lattice constants in x-ray diffraction work are simplified with this new back reflection camera. With a radius of 60 mm, it provides excellent resolution with reasonable exposure periods and covers a range of Bragg angle values from 59 degrees to  $88.74$  degrees. V-notch reference marks along the lower edge of the film-turret facilitate accurate calibration and eliminate errors due to film shrinkage. The notches, spaced 10 degrees

apart, produce a wedge pattern along the lower edge of the exposed film.

Camera includes a coupling to which a hose can be connected for



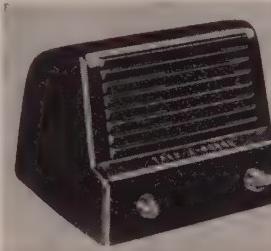
gas filling or evacuation. Specimen holder is slowly oscillated on a small arc by means of a cam driven by a 115 volt, 60-cycle motor. North American Philips Co., Dept. ST, 750 S. Fulton Ave., Mt. Vernon, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 6

## Wireless Intercom System

... permits easy movement

No wired installations are required with this two-station intercommunication system that can be plugged into any electrical outlet. Featuring the Sonic Gate which



screens out hum and noise, unit is designed for locations where instant or temporary installation is desired. Design permits more stations to be added at any time to the system, all stations being able to receive messages transmitted from any point. Talk-A-Phone Co., Dept. ST, 1 N. LaSalle St., Chicago 2, Ill.

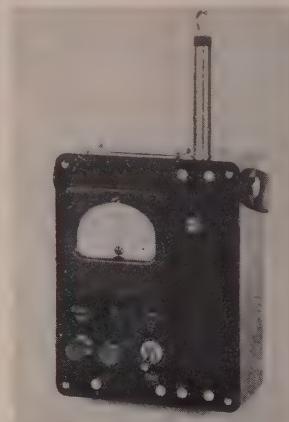
FOR MORE DATA—CIRCLE REPLY CARD NO. 7

## Fast Temperature Readings

... top efficiency, all ranges

Response to temperature changes in two seconds or less is obtained with model 328 Fastherm temperature indicator. Unit is a self-contained battery-powered electrical bridge-type indicating thermometer, originally designed for

checking heating and air conditioning in railroad cars. Readings are made on a 2-inch meter with an accuracy of 3 per cent of full scale. Range on this model is from  $60^{\circ}$  F to  $90^{\circ}$  F. Other ranges, with approximately 30-degree full scale spread, are available from  $-20^{\circ}$  F to  $220^{\circ}$  F. Weight of the instrument with two flashlight batteries is approximately  $2\frac{1}{2}$  pounds. Dimensions of the bakelite case are 4 inches wide, 5 inches high, and



1 $\frac{1}{2}$  inches deep. Associated Research Inc., Dept. ST, 3758 W. Belmont Ave., Chicago 18, Ill.

FOR MORE DATA—CIRCLE REPLY CARD NO. 8

## Granite Straight Edges

... accuracies to 0.00005 inch

Straight edges made from black granite in lengths up to 48 inches are now being produced for precision work. Used where absolutely flat surfaces must be checked and measured, with accuracies up to 0.00005 inch, these straight edges

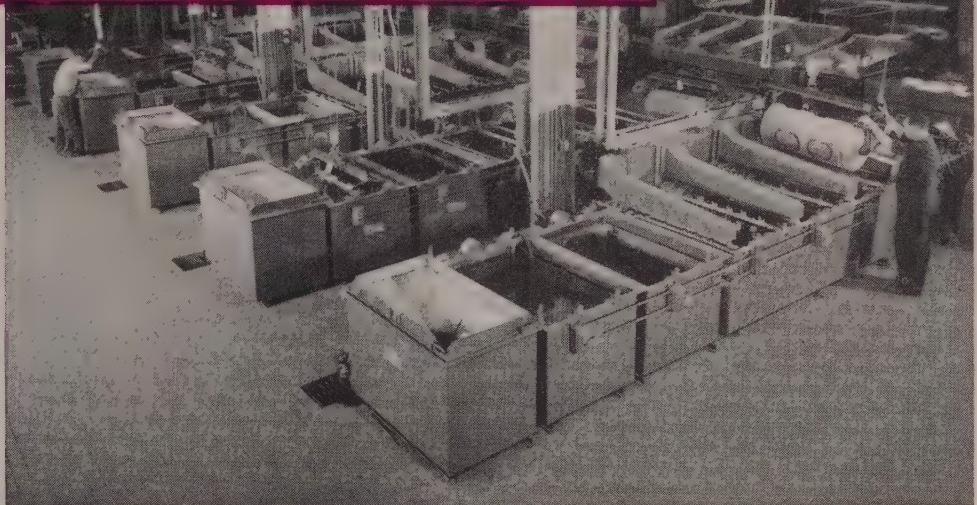


are velvet smooth and never require oiling. Microflat black granite is temperature-inert; it will not warp or deflect; and it will not rust or corrode regardless of atmospheric conditions.

Ends are tapered and fitted with

# UDYLITE BARREL PLATING EQUIPMENT ASSURES QUANTITY PRODUCTION... CONTROLLED UNIFORMITY... FAST, EFFICIENT PLATING...

at  
**UNION  
SWITCH  
AND SIGNAL**



*Udylite Barrel-Plating Installation at Union Switch and Signal, Swissvale, Pa.*

One of the most modern and streamlined electroplating plants in the United States...Union Switch and Signal, Swissvale, Pa., a division of Westinghouse Air Brake Company...uses barrel-plating equipment by Udylite. With this equipment, they know they'll get the plating results they're after!

Here's what Mr. Albert Beswick, Works Manager, says of Udylite barrel-plating equipment: "Union Switch and Signal and other divisions of Westinghouse Air Brake Company use millions of plated nuts, washers and screws

annually. For large-volume handling of these tiny parts, we have found Udylite's barrel-plating equipment to be invaluable from the standpoint of economy and maintenance."

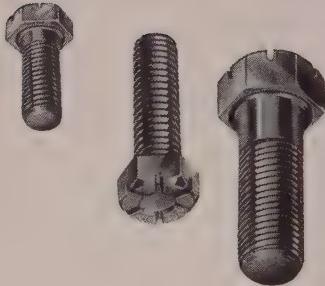
Why not let Udylite help you with your small parts plating problem. Whether it's a single barrel or a multi-barrel installation, Udylite has equipment tailored to your needs!

Call your Udylite Technical Man today or write direct. THE UDYLITE CORPORATION, DETROIT, MICHIGAN. *West of Rockies: L. H. Butcher Company, Los Angeles, California.*

PIONEER OF A BETTER WAY IN PLATING



# cold forged precision cap-screws



**CHANDLER** fasteners are manufactured to the highest standards of precision, uniformity and economy of assembly. **CHANDLER** specializes in one thing only . . . cold forged metal fasteners of the finest alloy steel, made to exacting specifications.

**CHANDLER** is prepared to render highly specialized or standard fasteners to your complete satisfaction. To make assembly faster, every fastener must pass rigid inspection, insuring uniformity, accuracy and good appearance.

**CHANDLER** supplies every industry with the very finest cold forged precision cap screws. Automotive, aviation, transportation, farm implement . . . whatever your needs — **SPECIFY CHANDLER.**

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Specialists in Thread-Rolling after Heat-Treating

**HANDLER**  
PRODUCTS  
CORPORATION

1488 CHARDON ROAD • CLEVELAND 17, OHIO

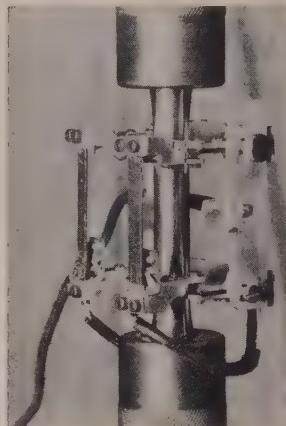
leather grips for easy, secure handling. A special storage case is provided with resilient nesting pads for protecting the edge surface. Collins Microflat Co., Dept. ST, Los Angeles 21, Calif.

FOR MORE DATA—CIRCLE REPLY CARD NO. 9

## Electrical Extensometer

. . . incorporates SR-4 gage

Electrical extensometer, incorporating SR-4 strain gage as sensing element, is available for use in tensile strength tests of standard 0.505-inch diameter test specimens with 2-inch gage length. Extensometer illustrated has measur-



ing range of 0.2 inch when used with SR-4 recorder.

Four strain magnification ratios can be obtained: 50, 100, 250 and 500:1, and both tension and compression strains can be recorded. Baldwin - Lima - Hamilton Corp., Dept. ST, Philadelphia 42, Pa.

FOR MORE DATA—CIRCLE REPLY CARD NO. 10

## Spin-Down Locknut

. . . grips after contacting work

Formed and threaded from a single piece of high carbon steel, locknut applies a permanent, vibra-

USE A  
**REPLY CARD**

Just circle the corresponding number of any item in this section for more information.



# INFORMATION

AVAILABLE FOR THE ASKING

## 0. Thermocouple Parts

Union Carbide & Carbon Corp., National Carbon Co.—Graphite thermocouple sheath parts—standard taper lugs, threaded end bushings and sleeves—for thermocouple measurement of steel bath temperatures are featured in catalog section S-6169. Physical data and ordering information are given.

## 1. Stainless Steel Bars

Allegheny Ludlum Steel Corp.—28-page technical booklet "Stainless Bars" features information to aid in selection of proper stainless steel material for the job at hand. It includes 12-page section of fabrication and processing data for stainless bars, plus reference tables on sizes and shapes available, weights and corrosion resistance.

## 2. High Melting Organics

Armour & Co., Armour Chemical Div.—Composition, general uses, chemical properties and applications of series of Arimid fatty acid derivatives are found in this 24-page booklet. Applications include molded rubber, fusible coatings, thickening agents, detergents, electrical equipment and powdered metals.

## 73. Broaches

American Broach & Machine Co.—"American Broaches" is both title and subject of 32-page spiral-bound catalog 450. First section is devoted to internal and surface broaches and broach pullers, with data on keyway broaching and resharpening, while second section covers broaching machines, internal and surface broaching operations. Many illustrations are used.

## 74. Purchasing Procedures

Remington Rand Inc.—Emphasizing importance of purchasing department and its place in top ranks of management planning, 20-page X-1202 outlines "Purchasing Procedures to Save Time and Money." Featured is check list which surveys information needed for efficient opera-

tion. Methods for processing requisitions, procuring bids, placing orders and follow up of orders are presented.

## 75. Ovens, Dryers, Heaters

Despatch Oven Co.—General information and application photos for a line of gas-oil, electric and steam finishing equipment are found in 16-page bulletin No. 51. Covered are ovens, dryers, air heaters, spray booths and flow coating, conveyors, metal cleaning and rustproofing and air conditioning.



## 76. Industrial Trucks

Lewis-Shepard Products Inc.—High and low lift Spacemaster industrial trucks are subject of 4-page illustrated bulletin. Both models will operate comfortably in 6-ft aisles. Straddle, open face pallet and platform high lift, and platform and pallet types in low lift model are illustrated.

## 77. Power Presses

Johnson Machine & Press Corp.—Back-gearied and flywheel types of inclinable power press are treated in illustrated bulletin 52. Fifteen models form the range, with capacities between 16 and 90 tons. Full specifications are given, together with illustrated data on the company hydraulically operated production metal shear.

## 78. Wool Felt Samples

American Felt Co.—Commercial Standard 185-53 wool felts are treated in sample catalog. It contains 47 reference samples, divided into three classifications. Sixteen types of mechanical roll felts, 18 sheet felts and 13 others are shown. Catalog also contains a felt standards bulletin prepared jointly by Dept. of Commerce and Bureau of Standards.

**STEEL**  
Penton Bldg., Cleveland 13, Ohio  
Please send literature or detailed information on  
subjects circled at left to—

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
PRODUCTS  
MANUFACTURED \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY AND STATE \_\_\_\_\_

1	11	21	31	41	51	61	71	81
2	12	22	32	42	52	62	72	82
3	13	23	33	43	53	63	73	83
4	14	24	34	44	54	64	74	84
5	15	25	35	45	55	65	75	85
6	16	26	36	46	56	66	76	86
7	17	27	37	47	57	67	77	87
8	18	28	38	48	58	68	78	88
9	19	29	39	49	59	69	79	89
10	20	30	40	50	60	70	80	90

FIRST CLASS  
Permit No. 36  
(Sec. 34.9 P.L.R.)  
CLEVELAND, OHIO



**BUSINESS REPLY CARD**  
Postage Stamps Necessary if Mailed in the United States  
— POSTAGE WILL BE PAID BY —

**STEEL**  
Penton Building 13, Ohio

**BUSINESS REPLY CARD**

No Postage Stamp Necessary if Mailed in the United States

— POSTAGE WILL BE PAID BY —

**STEEL**Penton Building  
Cleveland 13, Ohio

FIRST CLASS  
Permit No. 36  
(Sec. 349 P.L.&R.)  
CLEVELAND, OHIO

1	11	21	31	41	51	61	71	81
2	12	22	32	42	52	62	72	82
3	13	23	33	43	53	63	73	83
4	14	24	34	44	54	64	74	84
5	15	25	35	45	55	65	75	85
6	16	26	36	46	56	66	76	86
7	17	27	37	47	57	67	77	87
8	18	28	38	48	58	68	78	88
9	19	29	39	49	59	69	79	89
10	20	30	40	50	60	70	80	90

**STEEL**

Penton Bldg., Cleveland 13, Ohio

Please send literature or detailed information on  
subjects circled at left to—

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

PRODUCTS \_\_\_\_\_

MANUFACTURED \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY AND STATE \_\_\_\_\_

**79. Torque Converter**

Torcon Corp.—What the Torcon heavy duty hydraulic torque converter for variable loads at variable speeds can do for you is related in 6-page brochure TC-649. Included are selection chart, general data and advantages.

**80. Metal Slitting Saw**

North American Products Co.—Woodsman carbide tipped metal slitting and slotting saw is described and illustrated in 2-page data sheet. Operating data and characteristics and applications are detailed, as are suggested mill sawing feeds and speeds.

**81. Cemented Carbides**

Kennametal Inc.—Essential technical data on Kennametal series of cemented carbides and Kentanium heat resistant titanium carbide compositions, including mechanical and physical properties are found in 16-page illustrated bulletin C-53. General descriptions of characteristics, grade classifications, suggestions for design applications and typical applications are included.

**82. Industrial Controls**

Minneapolis-Honeywell Regulator Co., Industrial Div.—In more than 80 illustrated pages, catalog 8305 describes nonindicating electric, electronic and pneumatic controllers for temperature, pressure and humidity. Also featured are pneumatic and electric valves, switches and relays. Specifications, dimension drawings, application data and ordering info are included.

**83. Shear Knife Handbook**

American Shear Knife Co.—74-page illustrated handbook tells the complete story of company line of shear blades, chipper knives, wear plates, machine rolls and punches and dies. It shows how to select, order, set and apply any of them, and is valuable to engineer as well as purchasing agent.

**84. Profile Milling Machine**

Onsrud Machine Works, Inc.—A complete technical presentation of the A-72 Invomil profile milling machine for high spindle speed and feed nonferrous metal milling is given in 16-page illustrated bulletin 1140. Feature of the machine is cutting head which feeds in transverse, longitudinal and rotary planes.

**85. Surface Hardening**

Lindberg Steel Treating Co.—The design possibilities opened by the Malcomizing surface hardening treatment for stainless steels are subject of 24-page illustrated bulletin. Process and product characteristics are

thoroughly discussed, and typical applications instanced. Process improves product resistance to wear, abrasion, corrosion and erosion.

**86. Solenoid Valves**

Automatic Switch Co.—General information, valve selection chart and water flow chart for standard full-area valves are highlights of 80-page "Asco Solenoid Valves" catalog No. 24. Valve types described and illustrated include safety shut-off and manual reset, packless and packed full-area, three-way, two and three-way pilot controlled and four-way Strainers and filters are also covered.

**EDITORIAL ARTICLES**

Available in Limited Quantities

**87. Sintered Metal Finishing**

Problems in plating and finishing of powder metallurgy parts due to porosity are discussed by W. N. Pratt of American Metaseal Mfg. Corp. in STEEL article "Impregnation of Powder Metallurgy Parts Improves Corrosion Resistance." Impregnation with polyester resin prior to plating also cuts down on other finishing troubles.

**88. Wider Clad Metals**

In STEEL article "Bigger Copper Clad Sandwiches," improved processes and techniques used at Superior Steel Corp. for producing clad strips three times wider than previous made are discussed. Process reduces cost by cutting down percentage of copper alloy wasted in edge-trimming. More civilian uses are now made possible.

**89. Automatic Foundry**

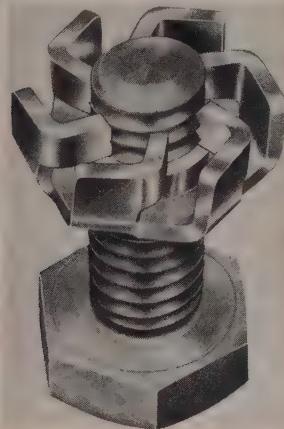
STEEL article "Automatic Foundry Nears Reality," by L. J. Bishop of Mechanical Handling Systems Inc shows that shell molding machine tied in with other modern handling equipment make possible volume production of quality castings with low manpower requirements. Layout drawing of mechanized foundry is offered.

**90. Quality Control**

H. A. Prelinger, research engineer at General Metals Corp., cites some examples of the coordination of production personnel with laboratory and control staffs at this company's Ade Div. in STEEL article "Quality Control Takes Teamwork." System guarantees customer satisfaction and uninterrupted production.

**NEW PRODUCTS**  
and equipment

on-proof grip only after nut actually contacts the work. This spin-down action, at point of contact with the work, takes up all play after a  $\frac{1}{4}$  turn. Shrinking

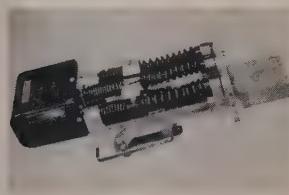


action is caused by the concave base design. Locknut is unaffected by water, oil or heat up to 550° F., available in Nos. 8 to 10 and  $\frac{1}{4}$ -inch sizes in both National Fine and National Coarse threads. Thompson-Bremer & Co., Dept. ST, 520 N. Dearborn St., Chicago 10, Ill.

FOR MORE DATA—CIRCLE REPLY CARD NO. 11

**Buffing Compound Applicator**  
... has variable settings

Light weight in construction, less than 18 pounds, this new applicator can be installed on all



types of buffing machines from simple lathes to multi-operation automatics. It will accommodate

# for a *fabulous finish...*



## JEWEL BRAND Abrasive Belts

for grinding, sanding, polishing —  
metal, wood, leather, plastics, rubber.

**USE A  
REPLY CARD**

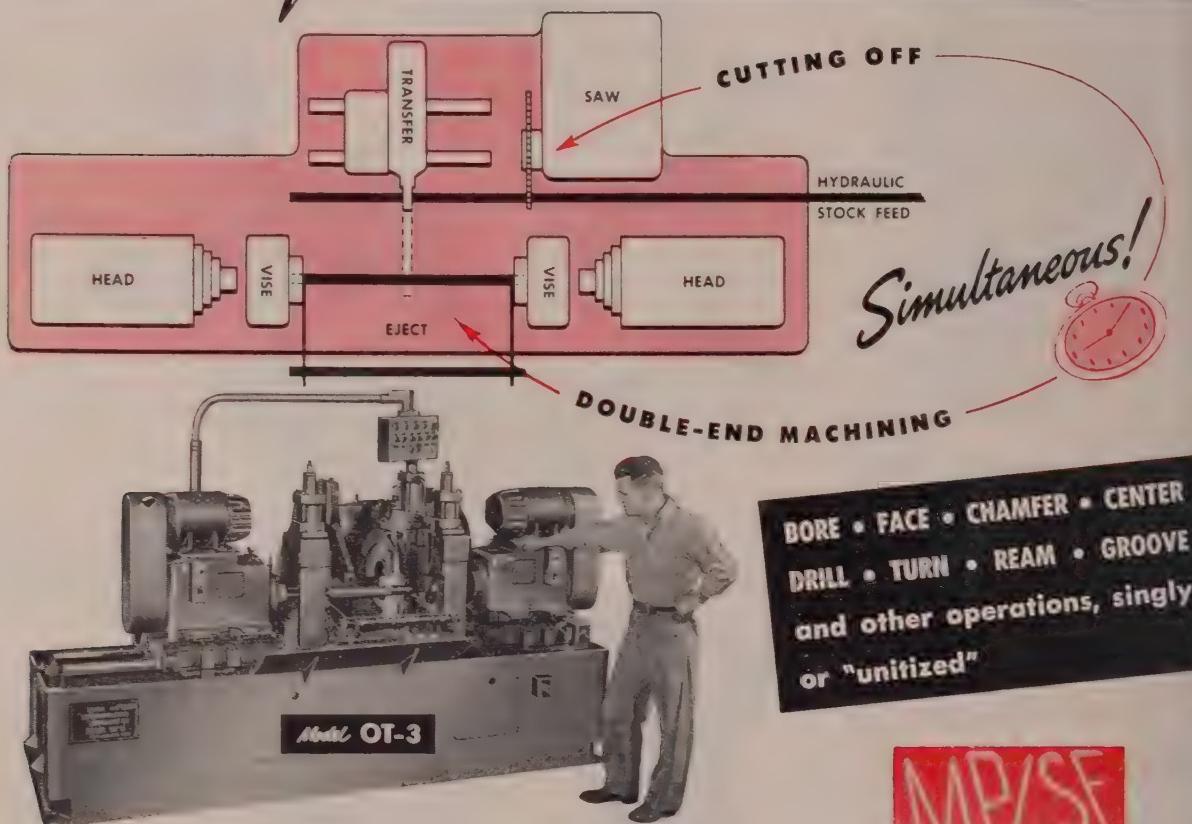
Just circle the corresponding number of any item in this section for more information.



**ABRASIVE PRODUCTS, INC.**  
511 Pearl Street  
South Braintree 85, Massachusetts

# Variety..

**CUT OFF** while you **DOUBLE-END MACHINE**  
on **HOTCH & MERRYWEATHER**  
**AUTOMATIC TRANSFER MACHINES!**



### PRODUCE PROFIT COSTS...

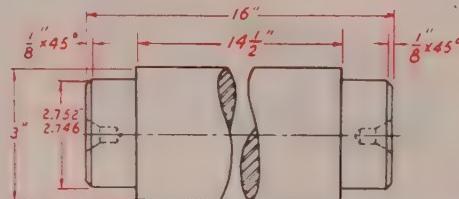
Three or four machines in one. Cut off to accurate length and double-end machine simultaneously. Cut-off time is virtually "free". Change-over quick from job to job! Ideal for short or production runs. Cycle fully automatic. Remember: it's the cost per piece that counts.

### Case Study No. 182

Operation: Cut off, box mill, turn and center drill both ends.

Material: SAE 1020.

Production: 110 pieces per hr.



### S P E C I F I C A T I O N S

ITEM	Model OT-3	Model OT-4½	Model 2T-6
Rated diameter stock	1/2" to 3"	3/4" to 4 1/2"	1" to 6"
Standard work length	8" to 40"	8" to 40"	8" to 40"
Weight (approximate)	11,500 lbs.	15,000 lbs.	26,000 lbs.

\*Work length can be increased by special arrangement.  
NOTE: Supplied for ferrous or non-ferrous applications.

Manufactured by — **THE HOTCH & MERRYWEATHER MACHINERY CO.** —

CLEVELAND 13, OHIO

Builders of Circular Sawing Equipment, Production Milling, Turning and Special Machines

**PRODUCTION-WITH-ACCURACY MACHINES AND EQUIPMENT**



rectangular or round compound bars, and can be installed in any position without affecting operation. Key feature is its ability to feed any number of strokes per minute, applying compound only when required. With each application, compound is fed forward to compensate for wear down of the bar, rate of feed being adjustable from 0.0015 to 0.015 inch per stroke. George L. Nankervis Co., Dept. ST, 19255 W. Davison, Detroit 23, Mich.

FOR MORE DATA—CIRCLE REPLY CARD NO. 12

### **Motorized Card File**

. . . pushbutton record selection

A touch of the switch brings desired section of records to a seated operator at this motorized card file. A suspended-cradle wheel type, the file handles existing records of every type without recopying or alteration and is available in



a wide range of sizes and capacities.

Records ride unattached in removable cradles or trays. Wheel-dex & Simpla Products Inc., Dept. ST, 40 Bank St., White Plains, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 13

### **Self-dumping Hopper Base**

. . . for fork or jack-tongue trucks

A specially-designed base on this self-dumping hopper permits moving with either a jack-tongue or a fork-type lift truck. By inserting the jack-tongue in the socket on the special base of the hopper, a worker can wheel the loaded container to the desired place, replacing it with an empty hopper. Truck trips can be regularly scheduled, moving loaded hopper to its des-



**Lufkin**

**Now Rust-Proofs**

**Precision Instruments**

**with paper!**

# **Wrap Out Rust**

**with NOX-RUST  
Vapor-Wrapper**

**New Chemically Active Paper Gives Fast, Clean  
Rust-Proofing—at far lower cost!**

**V**APOWRAPPER—easy to use as wrapping paper—rust-proofs machine parts and delicate instruments at lowest cost... delivers them to your customers "factory-fresh," ready for use!

Like many other major manufacturers, Lufkin Rule Co. uses Vapor-Wrapper to protect its delicate precision instruments from damaging rust.

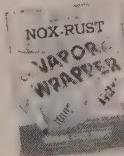
Vapor-Wrapper protects all metal products—from cotter pins to printing presses. It economically blocks rust formation on products being shipped or stored.

The chemical within Vapor-Wrapper—an exclusive development of NOX-RUST laboratories—

makes moisture-laden air non-corrosive... without the need for an air-tight package... without deposits forming on the metal. Cut costs and improve service in your business with Vapor-Wrapper!

Vapor-Wrapper conforms to Military Specifications MIL-P-3420, Packaging Materials, Volatile Corrosion Inhibitor Treated.

**Write for full details on Vapor-Wrapper NOW!**



This booklet points the way to real savings for you. It describes Vapor-Wrapper in detail and tells how leading companies use it to save up to 75% on packaging costs. Please write on your letterhead, today!

**NOX-RUST  
(VAPOR)  
WRAPPER**

**NOX-RUST**

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Corporation

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**AMBLER PENNA.**

CHEMICALS  
**ACP**  
 PROCESSES

**Technical Service Data Sheet**

**Subject: PROTECTING FRICTION SURFACES**

**WITH THERMOIL.  
 GRANODINE®**

**INTRODUCTION**

Fabricators and product designers, particularly in the automotive field, are aware that even highly polished surfaces under friction weld, gall and score. One of the most inexpensive and practical methods of preventing this is to coat the metal to prevent metal-to-metal contact. With cast iron or steel, the "Thermoil-Granodine" manganese-iron phosphate coating provides a wear-resistant layer of unusual effectiveness.



Thermoil-Granodizing greatly prolongs the life of parts subject to friction. It protects the surface of products like the diesel engine liners shown above and the many moving parts of automobiles and other machines. "Thermoil-Granodine", with its remarkable lubricating properties, is particularly valuable in these and similar applications because of its ability to retain oil and maintain lubrication under high pressures and high velocities. This ACP wear-proofing chemical not only permits rapid break-in without scoring, scuffing and welding but also reduces subsequent wear on friction parts.

**"THERMOIL-GRANODINE"  
 PROTECTS RUBBING  
 PARTS**

Thermoil-Granodizing removes "fuzz" from ferrous metal friction surfaces and produces a coating of non-metallic, water-insoluble manganese-iron phosphate crystals which soak up and hold oil as bare untreated metal cannot do. The oiled crystalline "Thermoil-Granodine" coating on piston rings, pistons, cylinders, cylinder liners, cranks, cam-shafts, gears, tappets, valves, spiders and other rubbing parts, allows safe break-in operation, eliminates metal-to-metal contact, maintains lubrication and reduces the danger of scuffing, scoring, welding, galling and tearing of the metal. The work to be protective-treated is merely Thermoil-Granodized and oiled, usually with a soluble oil.

**"THERMOIL-GRANODINE" MEETS THESE SPECIFICATIONS**

SPECIFICATION NUMBER	SPECIFICATION TITLE
MIL-C-16232 Type I	Coatings — phosphate; oiled, slushed, or waxed (for ferrous metal surfaces) and phosphate treating compounds.
AN-F-20 (See also U.S.A. 3-213)	Finishes, for electronic equipment.
U.S.A. 57-0-2C Type II, Class A	Finishes, protective, for iron and steel parts.
U.S.A. 51-70-1 Finish 22.02, Class A	Painting and finishing of fire control instruments; general specification for
M-364	Navy aeronautical process specification for compound phosphate rust-proofing process.



WRITE FOR FURTHER INFORMATION ON  
 "THERMOIL-GRANODINE" AND ON YOUR OWN METAL  
 PROTECTION PROBLEMS.

**NEW PRODUCTS**  
 and equipment

tination, dropping another empty off when picking up the full ones. This saving is accomplished through addition of wheels to the



sturdy base of the hopper. Feature is available with hoppers of  $\frac{1}{2}$ -yard to 2-yards capacity. Roura Iron Works Inc., Dept. ST, 1401 Woodland Ave., Detroit 11, Mich.

FOR MORE DATA—CIRCLE REPLY CARD NO. 14

**Radial Play Measured**

. . . uses column-type air gage

Radial play in ball and roller bearings is measured at higher amplifications than is possible with dial indicators by using combination of Plunjet gaging cartridge



and a column-type air gage. Two standard models are available, one for outer diameters ranging from 18 to and including 90 mm, and the other for diameters from 90 to and including 180 mm. Sheffield Corp., Dept. ST, Dayton 1, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 15

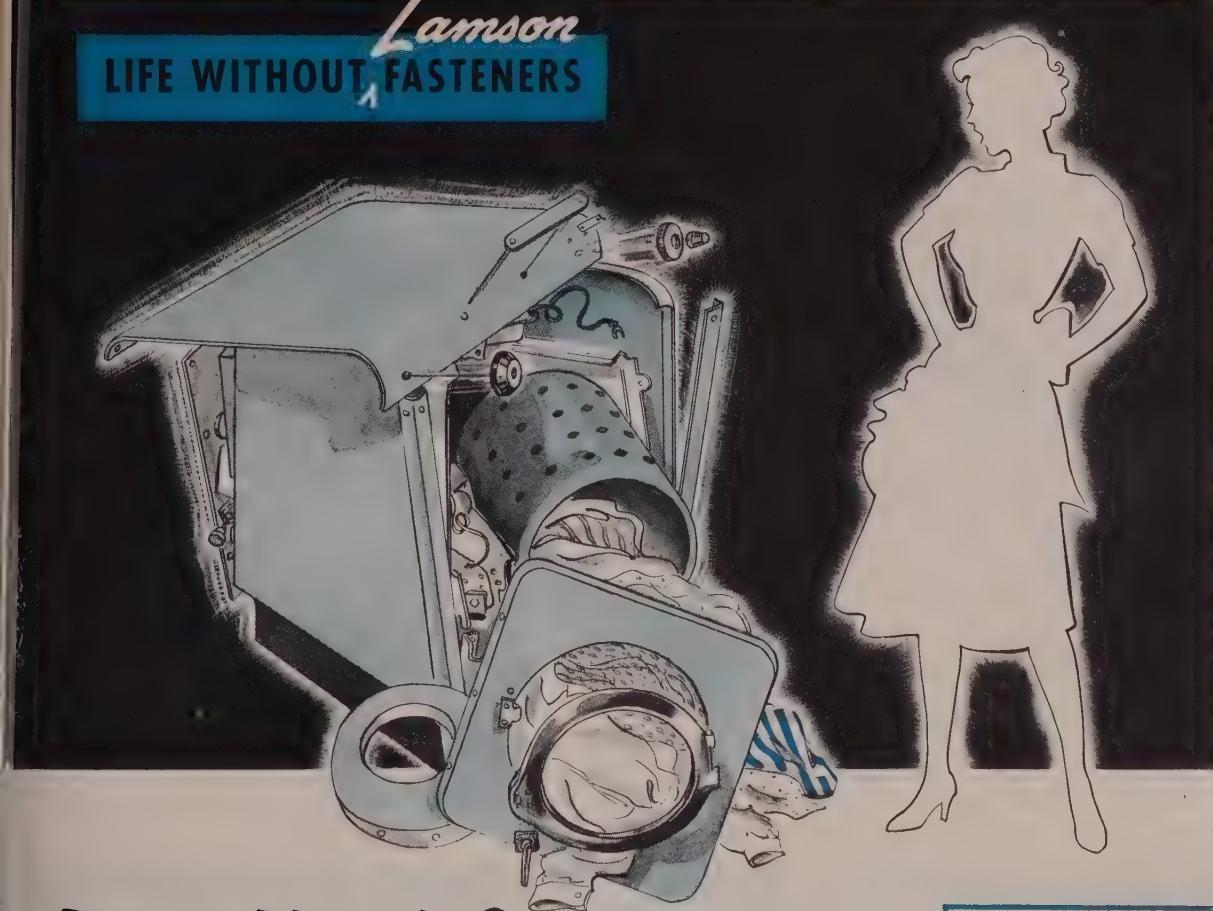
**Portable Electric Saw**

. . . 5600 rpm's make it versatile

Featured in this  $8\frac{1}{4}$ -inch saw are: / Universal motor, ball and needle roller bearing construction, overhead-type handle for easy one-hand control, built-in rip-fence and automatic telescoping blade guard with retracting handle. It is completely adjustable for depth of cut from  $1/16$  to  $2\frac{1}{8}$  inches and for bevel cutting up to 45 degrees. Weighing only  $14\frac{1}{4}$  pounds, it cuts



**Lamson**  
**LIFE WITHOUT FASTENERS**



# Done Already?

Watch out lady! By some black

magic all bolts, nuts and screws have suddenly popped from your dryer!

Sure, it's pure fantasy, but it shows in no uncertain terms how important fasteners are to modern home appliances—and most other products, for that matter.

The moral for designers, production and purchasing men is obvious: *Fasteners are one of the most important components of any product.* And, as such, should be selected with care and purchased from a manufacturer with a reputation for top quality and service.

Lamson & Sessions welcomes your inquiry on any fastener problem, and offers you engineering help whenever you require it.

**TAPPING SCREWS**  
for quick,  
easy assembly



• Lamson tapping screws assure you of solid dependable construction...no holes to tap...no nuts to assemble. Available from stock: Head shapes—round, pan, truss, flat, oval and recessed hex. Threads—type "A", "B" and "C". Head types—slotted, clutch and Phillips.

**The LAMSON & SESSIONS Co.**  
1971 West 85th St. • Cleveland 2, Ohio  
Plants at Cleveland and Kent, Ohio • Birmingham • Chicago

FOR PROMPT DELIVERY AND HELPFUL SERVICE,  
ORDER FROM YOUR LAMSON DISTRIBUTOR



**MACHINE SCREWS**

AND NUTS  
Precision made for  
fast, economical  
assembly.



**PLUG NUTS**  
Ideal for blind or  
hard-to-reach  
places.



**TAPPING SCREWS**  
Choice of round,  
pan, truss, flat,  
oval, hexagon  
and Phillips  
heads.



**CAP SCREWS**  
Bright and "1035"  
Hi-Tensile Heat-  
treated steel.



**SQUARE AND HEX  
NUTS**  
Semi-finished, hot  
pressed, cold  
forged.



**LOCK NUTS**  
Economical, vibra-  
tion proof. Can be  
used repeatedly.

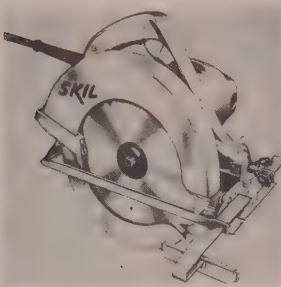


**COTTER PINS**  
Steel, brass, alu-  
minum and stain-  
less steel.



**"1035" SET  
SCREWS**  
Cup point type,  
hardened and  
heat-treated.

2-inch dressed lumber at 45 degrees and cross-cuts 3-inch dressed lumber. High speed of 5600 rpm enables it to cut and score concrete,



cement block, stone, metal and composition materials, Skil Corp., Dept. ST, 5033 Elston Ave., Chicago 30, Ill.

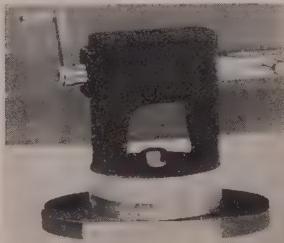
FOR MORE DATA—CIRCLE REPLY CARD NO. 16

### Grinding Wheel Dresser

... reduces setup time

With this instrument both sides of a wheel can be dressed without disturbing the original setup. This is accomplished by means of a

double-end diamond. Fixture can be used on both cylindrical and surface grinders by means of a slight adjustment. Diamond travel is 2½ inches, with accuracy assured by means of a threaded shaft operated by a small hand crank. Base of dresser is machine engraved to 360 degrees, in graduations of 1-degree



increments. Phelan Engineering Service, Dept. ST, 1913 W. Magnolia Blvd., Burbank, Calif.

FOR MORE DATA—CIRCLE REPLY CARD NO. 17

### Automatic Air Drill

... for single and multiple feed

Powered by compressed air, hydraulically fed, this drilling unit weighing 30 pounds, accomplishes

single and multiple feed rate operations. Stroke is adjustable to 4 inches with ample thrust for ½-inch diameter drilling in steel. Positive stop with a dwell or instantaneous retract operation; continuous cycling, skip drilling, back feeding and manual jogging are easily achieved.

Rotary air motors available in a variety of capacities to ¾ hp and speeds of 500 to 15,000 rpm, give this model extremely wide working



range. It can be mounted in horizontal, vertical or angular planes. Hause Engineering, Dept. ST, Montpelier, O.

FOR MORE DATA—CIRCLE REPLY CARD NO. 18

**MAY-FRAN**

## AUTOMATIC SCRAP REMOVAL PAYS OFF!

### CHIP-TOTE . . . eliminates machine down-time at THOMPSON PRODUCTS, INC.

Machines produce more when MAY-FRAN CHIP-TOTES permit continuous operation. CHIP-TOTE automatic scrap conveyors remove borings, turnings and chips from high-production machine tools while they are operating . . . thus eliminating shut-down for manual scrap removal.

At Thompson Products, Inc., Cleveland Plant, CHIP-TOTES speed production by continuously conveying the large volume of chips generated by Sundstrand automatic lathes from machine to tote boxes. Operating speed of the CHIP-TOTES is synchronized with metal removing capacity of lathes to assure steady jam-free flow of scrap. In addition, the CHIP-TOTES provide for drainage and return of coolant.

**MAY-FRAN**

**ENGINEERING, INCORPORATED**

1725 CLARKSTONE ROAD

CLEVELAND 12, OHIO

## Roll-up Broaching Machines

... from 6 to 30-ton capacities

Featuring adjustable cutting speed and quick, convenient stroke adjustment plus two-control lever arrangement as standard, requiring



the use of both operator's hands, this line of vertical internal machines ranges in sizes from 6-ton capacity, 36-inch stroke, to 30-ton

capacity, with a 60-inch stroke.

Machines may be arranged to handle from one to four parts simultaneously, depending on size. Machines can be supplied with electric controls if so desired. Acme Broach Corp., Dept. ST, Milan, Mich.

FOR MORE DATA—CIRCLE REPLY CARD NO. 19

## Wrapping Paper

... protects polished surfaces

This wrapping combines the advantages of the outside shock resistance of Chippaflex flexible corrugated and the inside soft, non-abrasive cushioning of Kimpak. It can be used in shipping items with highly polished metal surfaces and delicate articles of any kind. Chipewa Paper Products Co. Inc., Dept. ST, Chicago, Ill.

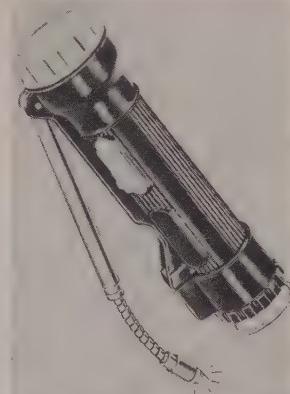
FOR MORE DATA—CIRCLE REPLY CARD NO. 20

## Flash With Probe-Light

... puts light around corners

New industrial flashlight with patented built-in dual lighting system provides a probe-light for

pinpoint inspection of inaccessible parts and equipment. When flexible slide-out cable with bulb and plastic guard is extended, light is automatically transferred to the small bulb, and the extension tube encased in the arm can be goose-necked around corners or into deep out-of-the-way spots. Extension of



the probe-light arm measures 10½ inches. U. S. Electric Mfg. Corp., Dept. ST, 222 W. 14 St., New York 11, N. Y.

FOR MORE DATA—CIRCLE REPLY CARD NO. 21

Write today for the  
new CHIP-TOTE  
Bulletin MF-640

# *stamping capacity - for the TOUGH jobs*



#### **CUSTOM-DESIGNED CONTROLS**

Danly Controls are engineered to the individual press in accordance with the specific operating requirements . . . providing simplified installation, greater safety and ease of operation. Note the Danly Master Control Cabinet in the background, "packaged" for efficient installation and maintenance.

#### **GREATER PRESS ROOM FLEXIBILITY**

View of Danly 600-ton Single Action Straight Side Press in operation. Danly's extra-rigid construction assures full rated capacity . . . for bigger work, heavier work, more kinds of work. It's built to stand up under around-the-clock operation, too, to meet emergency production demands.

#### **PRODUCTION TIME CUT IN HALF**

4 single stage dies are involved in stamping the farm tractor seat pan shown . . . but only 2 stamping operations are necessary instead of 4. 2 operations are performed at one stroke. Dies are mounted two at a time to produce 300 pieces per hour—cutting production time in half!



## **a DANLY PRESS does it!**

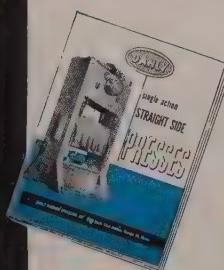
### **FOR WISCONSIN METAL PRODUCTS CO.**

The addition of this 600-ton Danly Straight Side Press represents an important expansion of shop capacity for the Wisconsin Metal Products Co., of Racine, Wisconsin. It means far more than just another press because its 96 by 42 inch bed opens up a whole new field of operation in large stampings . . . and provides important "capacity insurance" for a wider variety of jobs.

Exclusive Danly Press features mean lower stamping costs too. Automatic oil lubrication decreases maintenance requirements . . . the Cool-Running Clutch wears longer, reduces down-time . . . greater structural rigidity assures less vibration and bed deflection, increases die life. Whatever your requirements, there's a Danly Press designed to increase your stamping capacity—for the TOUGH jobs.

#### **DANLY MACHINE SPECIALTIES, INC.**

2100 South Laramie Avenue, Chicago 50, Illinois



*Send for this free Booklet today*

*. . . see how you can put Danly Presses to work in your plant for increased capacity at lower cost!*

**DANLY**

**ECHANICAL PRESSES . . . 50 TO 3000 TONS**

**HYDRAULIC METALWORKING EQUIPMENT**

*It costs less to run a DANLY PRESS*



Single Action  
Straight Side



Autofeed



Underdrive  
Single, Double,  
Triple Action



Gap Frame



Double Action  
Straight Side

## PROGRESS . . .

(continued from p. 86)

To avoid stopping the line during recharging of the payoff reel, two coiling units are employed. Time required to weld leading and trailing ends is taken care of by a looping pit. Ejection of off-gage plate at exit end of line is controlled by a flying micrometer immediately after ends are seam welded. The continuous strip is then cleaned electrolytically with an alkaline detergent, washed and pickled in acid.

Tin plating zone consists of five plating tanks and one drag-out electrolyte recovery tank. Tin is deposited from tin anodes that hang diagonally in the tanks on each side of each strand of the loop. Current is controlled for constant coating at different speeds.

**End of Line**—After plating, coating is flow melted, then quenched immediately in water. Electrochemical treatment with dilute chromic acid follows, and then strip is coated with a fine film of cotton seed oil to prevent chafing of plate in



Trostre has five annealing furnaces. Batch type, they are fired with oil

# GLOBE

**Specialization gives you  
"Tops in Quality"**

## ALLOY STEEL TUBES

### SEAMLESS—MECHANICAL—PRESSURE—CORROSION-RESISTANT

#### TYPICAL ANALYSES:

Carbon	5 Chrome 1/2 Moly
Carbon 1/2 Moly	7 Chrome 1/2 Moly
1/2 Chrome 1/2 Moly	8 Chrome 1/2 Moly
1 Chrome 1/2 Moly	8 Chrome 1 Moly
1 1/4 Chrome 1/2 Moly	9 Chrome 1 Moly
2 Chrome 1/2 Moly	3% Nickel 7% Nickel
2 1/4 Chrome 1 Moly	5% Nickel 9% Nickel

AISI Types: 304-321-347-316-309-310-405-410-430-443-446

Analyses to meet conditions where heat, corrosion, pressure and structural strength are involved.

#### SIZE RANGE—WALL THICKNESS:

1/2 to 6 inches O.D. — wall thickness .035 to 1.000 inch.

#### TYPICAL APPLICATIONS:

Pressure tubes — Superheater tubes — Condenser tubes — Still tubes — Evaporator tubes — Barrel tubes — Oil-well Pump Barrels — Mechanical tubes — Aircraft tubes — Propeller tubes — Rollers for Transmission Chains.

The heating, piercing, rolling of seamless tubes is controlled at every step for uniformity, close tolerance.

Globe engineers gladly give you the benefit of specialized knowledge of seamless steel tubing in a wide range of services and applications — to improve your product — to cut costs.

**TO BE SURE...  
SPECIFY GLOBE**



WHEN you specify Globe, you get uniform high quality alloy steel tubes, the product of highly developed production facilities and specialized quality controls and methods. All Globe tubes are thoroughly inspected and closely held within tolerance specifications. Write for the Globe general catalog.

## GLOBE STEEL TUBES CO.

MILWAUKEE 46,  
WISCONSIN

Chicago • Cleveland • Philadelphia • St. Louis • New York • Detroit  
Denver • Houston • San Francisco • Glendale, Cal.

Producers of Globe seamless stainless steel tubes — Gloweld stainless steel tubes — alloy — carbon — seamless steel tubes — Globetron (high purity ingot iron) seamless tubes — Globe Welding Fittings.

piling and to assist handling in can factories.

Cut tin plate passes to the sheet classifier and piler, where it is sorted into three separate piles by independently driven conveyors and selector gates. First piler box contains off-gage and pin-holed plates; second, plate of doubtful appearance; third, primes. Defective plate is sorted for recovery or retreatment. Prime plate is counted automatically and recorded by an electric-eye counter.

## Casting Porosity Studied

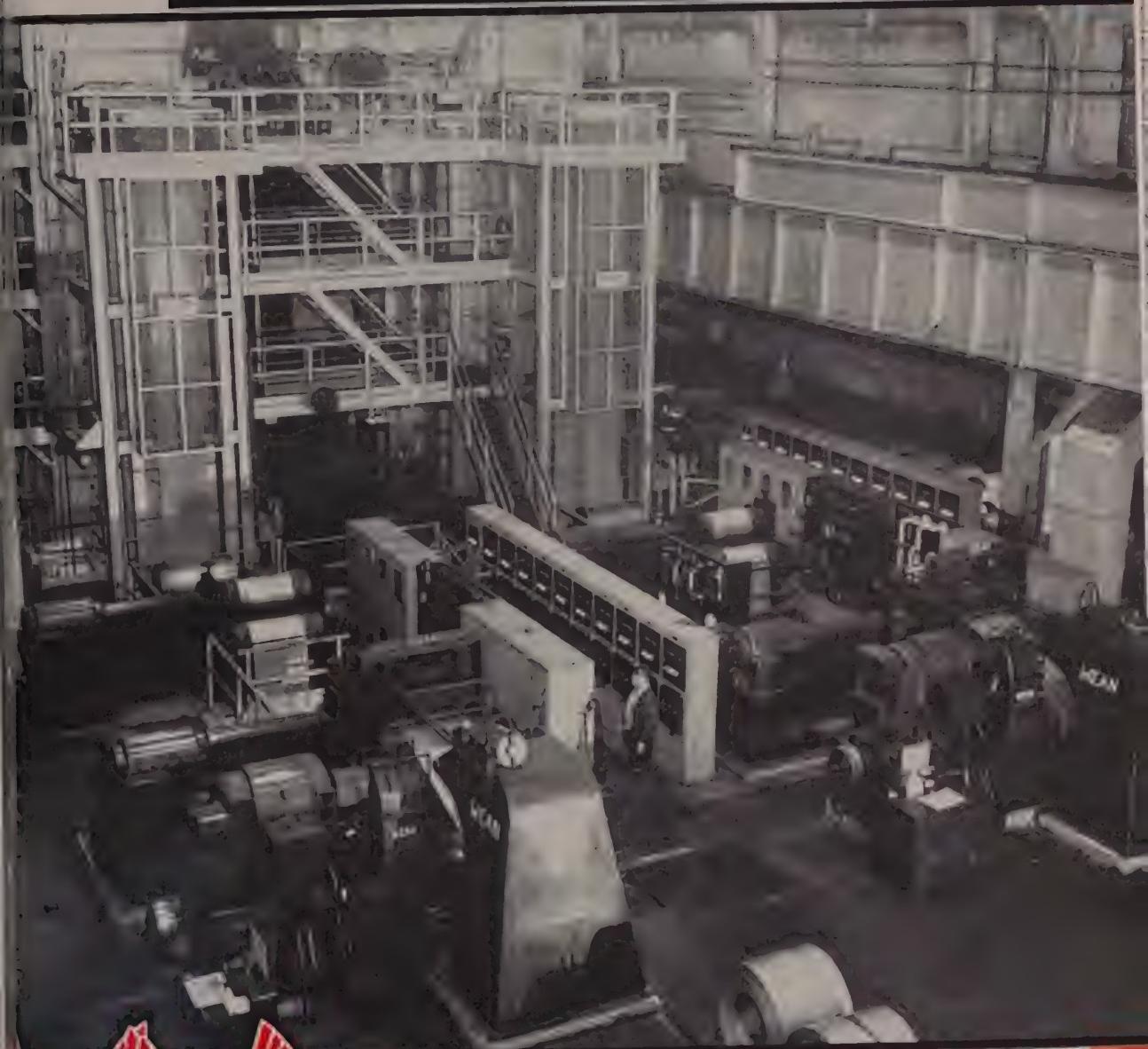
An informative report on impregnation, prepared by the chief metallurgist of a leading hydraulic device manufacturer, is available for distribution to design, production and quality control engineers having a problem with porosity in castings designed to hold gas or liquid under pressure.

Report compares custom impregnation with a plant installation and analyzes costs, amortization of equipment and results. Copies can be obtained by writing Seal Cast Co. Inc., 2113-15 E. York St., Philadelphia 25.

## Boron Steel Booklet Ready

Collection of the most pertinent technical papers on the subject of boron steels has been published in booklet form by American Society for Metals, 7301 Euclid Ave., Cleveland 3. Completely subject indexed, the 112-page book sells for \$1 per copy.

*tower type* annealing



WEAN  
Engineering  
Company, Inc.  
CINCINNATI . . . OHIO

THE combined efforts of Wean-Drever engineers produced the first successful gas-fired Furnace for the continuous annealing of Tin Plate. Wean-Drever Tower Type Annealing conserves valuable floor space — produces a uniform high quality of annealed product.

Wean engineers once again have proved their leadership as Specialists in Sheet, Tin and Strip Mill Equipment.

SPECIALISTS IN SHEET, TIN AND STRIP MILL EQUIPMENT

CLEANING TIME SLASHED WHEN...

# Tank Castings Get Shot Blasted



Size of the armor steel hull casting for the Patton 48 tank is appreciated when compared to the 15 x 8½-foot work car which carries it into blaster

**Big one-piece cast steel hulls for Patton tanks posed a real cleaning problem. Shot-blast equipment, biggest of its kind, turns hours into minutes at American Steel Foundry**

By ERLE F. ROSS  
Chicago Editor

CLEANING cast armor steel hulls and turrets for military tanks takes a sizable portion of total foundry time.

In the various steps between shakeout and final acceptance, the castings are subjected to blasting from five to eight times. It is important, therefore, that cleaning procedure be efficient and that equipment have sufficient capacity and flexibility to safeguard against processing bottlenecks.

**The Problem**—Size and shape of tank hull and turret castings introduce some cleaning problems. Hulls, for example, are of generous dimensions and weigh tons rather than pounds. Associated with this large mass and weight is the matter of handling the castings through the cleaning operations. And turrets as well as hulls are of such design that some sections of the interiors are difficult to reach for easy cleaning.

Hailed as the first completely new medium tank developed since World War II, the Patton 48 medium tank, in the 45 to 50-ton class, provides outstanding features. Its new design gives it a low silhouette, elliptical sides, elliptical tur-

ret and stronger and wider tracks. The sloping elliptical sides make it extremely difficult for an enemy to get a "bite" and plough through the armor.

**Big Feature**—Most significant feature of the Patton 48 from the viewpoint of tank builders, however, was the fact that this was the first time it had been possible for armor manufacturers to make a one-piece cast hull in volume. Previously hulls had been cast in front and rear sections and welded together. The larger-size one-piece hull confronted the foundry with the necessity of installing automatic cleaning equipment bigger than anything previously engineered.

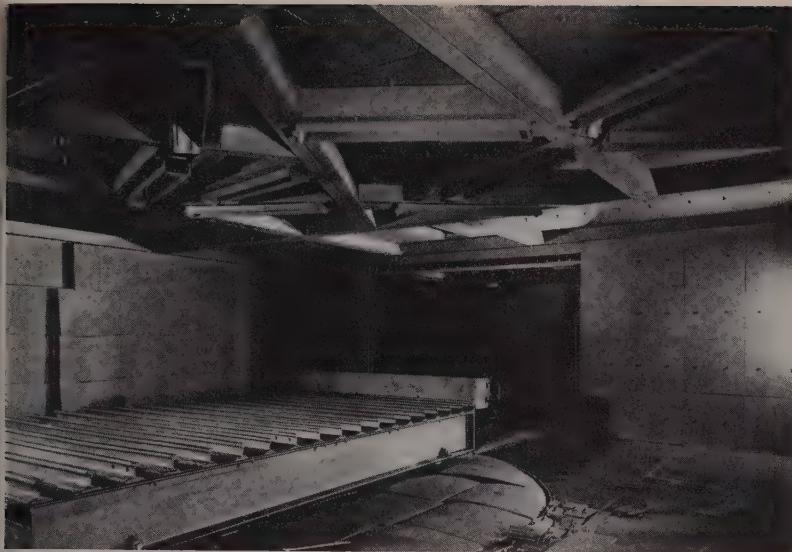
Armor castings for the Patton 48, as well as the M-47 medium tank, are produced in the Cast Armor Division of American Steel Foundries, East Chicago, Ind. In December, 1950, some six months after the Korean outbreak, the company was called upon to reactivate the plant which had remained idle since World War II.

**New Equipment**—A good portion of the original production and processing equipment has been re-

placed because in the interim between World War II and Korea armor protection for tanks was enlarged greatly to make it more difficult for penetration by enemy shells. Included in the new equipment are two blast cleaning installations engineered for their special assignment by American Wheelabrator & Equipment Corp., Mishawaka, Ind. The larger of the two, and the biggest which the company has built, is a nine-wheel unit. The other has five wheels.

The larger machine performs the cleaning of Patton 48 hulls. It has a cabinet 28 x 29 feet in floor area and 8½ feet between floor level and ceiling. Provided in the floor is a turntable 17½ feet in diameter which is capable of supporting work having a maximum swing diameter of 26 feet. All nine blasting wheels are in the ceiling of the cabinet. Abrasive used is 0.062-inch cut steel wire pellets.

**Rolled Right In**—Cabinet has electrically-operated lift-type doors on two opposite sides so that work can be loaded or unloaded from either side. Work is loaded on either of two steel cars, 15 feet long and 8½ feet wide, mounted on



Cleaning cabinet is 28 ft wide by 29 ft long. Castings are rotated under nine blasting wheels by a 17½-foot turntable. Slots show location of wheels

a track running through the cabinet and matching with the turntable track. The cars are hitched together and work as a pair. As one car is pulled out of the cabinet for the casting to be turned over or removed, the second car carries a casting into the blasting zone.

Each tank casting is blasted from five to eight times during its processing. The first cleaning comes after shakeout and normalizing. Cleaning time for this condition is about 15 minutes in one position after which the casting is turned over and given 15 minutes in the new position. The inside of the hull nose is extremely difficult to blast because it is out of effective reach of the blast streams, consequently the hull is taken to an adjacent air blast room for about 10 minutes of spot touchup in the nose.

**Check Soundness**—After the initial blasting, the gates and risers are burned off the casting, and each is x-rayed for soundness. If foundry defects are found, these must be burned out preparatory to welding. The burning operation must be followed by another cleaning so that clean surfaces are presented for the welding.

When welding has been completed the casting must be cleaned again to remove slag, flux, and the like, which would interfere with a second inspection by x-ray. If

shown necessary, further burning and welding is undertaken with cleaning performed in the sequence just explained.

The time required for blast cleaning after burning or welding usually runs only from 5 to 7 minutes, depending upon the conditions the individual casting presents.

**Two-Man Job**—Two men attend the Wheelabrator—one is classed as the operator and the other as helper. They supervise the loading and unloading of the castings into

the blast cabinet, control the blasting time and regulate the abrasive flow to the hurling wheels. Blasting time and abrasive flow are set on the control panels. Nine ammeters, one for each wheel indicate the amount of abrasive being thrown. Each wheel can be individually set.

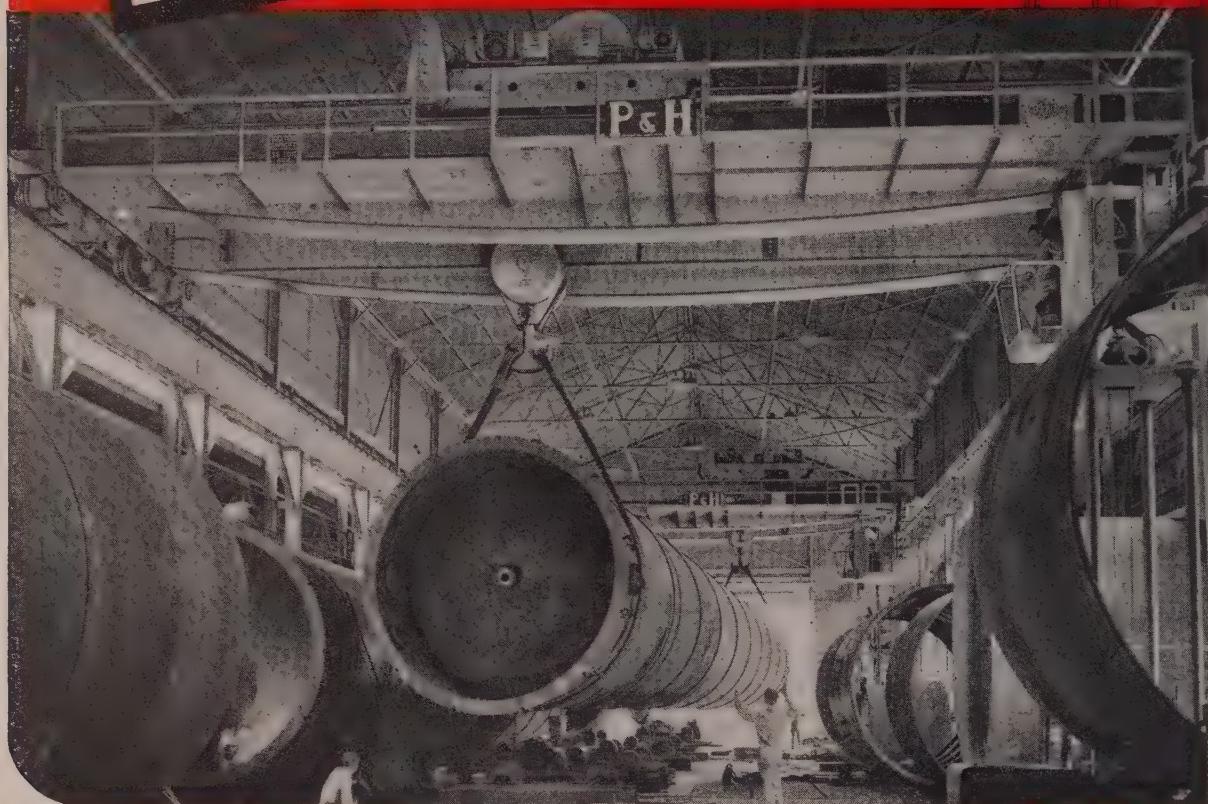
It is estimated that to obtain cleaning performance comparable with the automatic blast procedure would require from 4 to 5½ hours of time from each of two men in the airblast room. During periods in which the equipment may be caught up and is not fully engaged, it sometimes is utilized to clean some of the M-47 tank hulls which normally are handled in the smaller five-wheel Wheelabrator in another department.

**Smaller Unit**—Except for size and number of wheels, the five-wheel unit is similar in design and operation to the nine-wheel equipment. Its cabinet is 17 x 18 feet in floor area and has a height of 8½ feet. The floor level turntable is 14 feet in diameter and the steel work-holding cars are 12 feet long and 8½ feet wide.

Five-wheel model is used for cleaning front hulls, rear hulls and turrets for the M-47 medium tank and turrets for the Patton-48 tank. Blast time for turrets in the rough state—after shakeout and normalizing—is about 12 minutes in each of two positions, namely, top side up and reversed.



Hulls for the smaller M-47 medium tanks, as well as turrets for the Patton tank are cleaned in this five-wheel cabinet. S-660 shot is used throughout

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If you want the utmost in service from your cranes, insist that they be job *engineered* by P&H — not an assembly of components from various sources. For example, general purpose electric motors don't stand the gaff of crane service like those *designed* for the job. That's why P&H builds its own motors, brakes and controls — with all characteristics *properly suited* to crane operation: P&H electrical equipment throughout is your assurance that

all functions are perfectly coordinated. It means better service, less maintenance.

This policy of complete quality control — of single manufacturing responsibility — better service — made P&H the leading builder of overhead traveling cranes. Continuous improvement, far ahead of the field, has extended this leadership. Benefit by it when you buy your next cranes.

\*T.M. of Harnischfeger Corporation for electro-magnetic type brake.

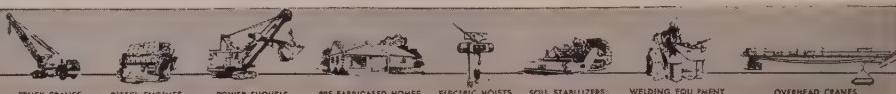
**P&H OVERHEAD CRANE DIVISION**  
**HARNISCHFEGER CORPORATION**

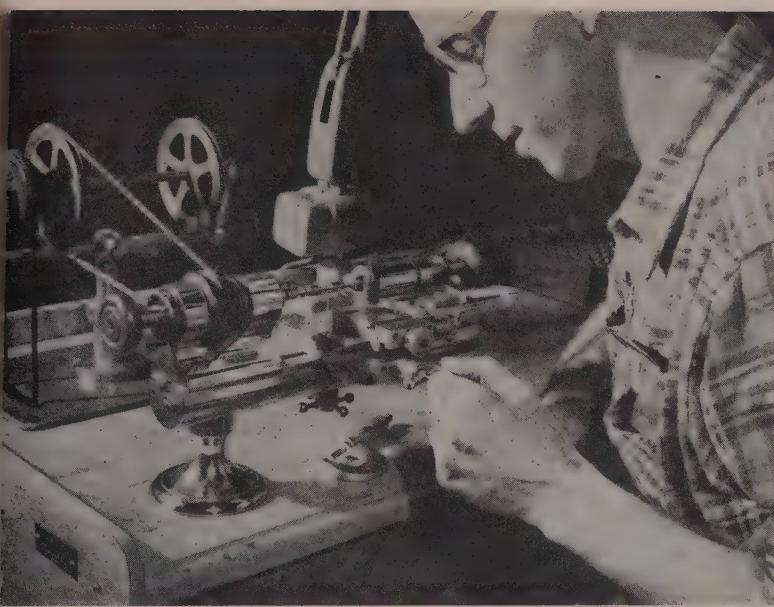
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## Toy-like Lathe With Important Jobs

Precise jeweler's lathes made by Louis Levin & Son Inc., Los Angeles, are essential pieces of equipment at Bell Aircraft, builder of guided missile air frames and power plants. Here one is machining a servomechanism valve to tolerances of 0.0001 inch, not an uncommon specification in the designs

### COLD EXTRUSION

(continued from p. 82)

sign and application apply to forward extrusion tooling. Support and die finish are uppermost in importance. Proper relief to avoid excessive friction is also a must. In both types, some provision must be made for the knockout or withdrawal of the part.

As mentioned before, fine finish is a natural result with cold extrusion. So is the ability to hold close tolerances. Actual limits are those built into the die. One part is just like the next, and all parts will be of the same size, except as the die wears.

### LUBRICATION

Lubricant for the cold extrusion operation must serve two purposes. First, it must prevent any contact between the metal being worked and the punch or die. Second, it must act as a friction reducer to facilitate the operation.

Dual-bonding surface protection, also developed by the Germans, is recognized as the best answer to the lubrication problem. In fact, in many cases, it is the only answer.

**Sequence**—Series of operations for coating starts with a cleaning operation to prepare the surface.

This can be cold alkaline bath, or a pickling operation followed by a rinse. Next comes a hot water dip and then an immersion in hot zinc phosphate for from two to seven minutes, depending on desired thickness.

This dip is followed by a hot water rinse and finally immersion in a soap-base lubricant. The resultant coating is apparently a zinc-to-iron bond for the salt coat and a zinc-to-phosphate bond for the lubricant.

Coating weights of from 600 to 900 mg per square foot will do the job. Heavier coatings will sometimes enable the part to be worked more than once without relubricating. Lubricating cycle can be set up with handling and transfer devices to make the system automatic. Hugh Gehman, American Chemical Paint Co., Ambler, Pa., points out that there are no new problems in phosphate coat application. Experience on other metal forming methods works in cold extrusion.

### PRESSES

Rule of thumb for selection of press capacity is that it takes about 125 to 150 tons per square inch of part cross section. Either mechan-

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Of course you prefer the Zip-Lift! With all its quality features, who wouldn't! But if higher cost has stopped you, here's good news. It is now available with improved rope control (one pendant, *not two*), for simple, easy, trouble-free operation — for only \$199.50. It is the same Zip-Lift in other respects — same quality — new type control. *What a buy!*

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CORPORATION

Milwaukee 46, Wis.

ical or hydraulic presses will do the job. Mechanical is probably better suited to the small jobs while hydraulic fits the larger ones.

Standard open back inclinable presses are being used on some of the production extrusion applications. Generally, for the mechanical presses, crank and the knuckle presses are best suited for extrusion.

**Set for Production** — Presses should be built for exact stroke limit which should be independent of the applied force and the press

work. A further requirement from the practical standpoint is that the presses should run continuously and be fitted with automatic feed and ejection equipment.

It is also necessary that the distance between punch and die be increased after forming of the work, so work can be stripped from the tools.

There's no speed limit on the extrusion operation. As one authority puts it, "It seems to work best when we hit the metal hard and then keep right on pushing."

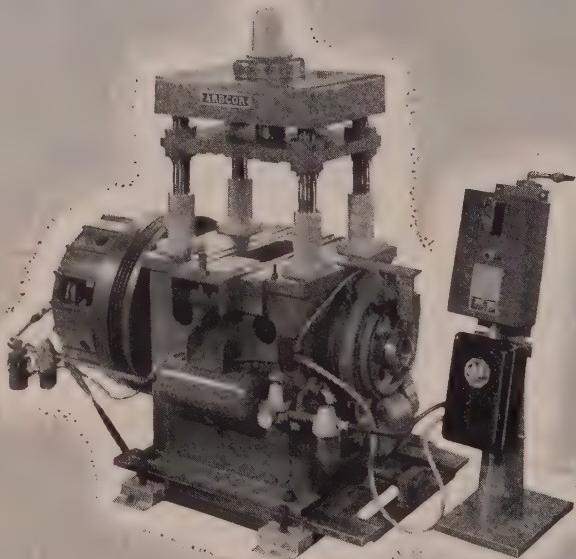


### MILLER TO GRINDER

Milling machine was changed into an external grinder by this novel conversion job at Ace-Central States Machine Tool Co., Detroit. By this method, as much as two days time are saved on 48-inch diameter work.

## ARDCOR *Engineered*

**MEANS BETTER COLD-ROLL FORMING**



### 35 TON PRESS EQUIPPED WITH AIR CLUTCH AND AIR RELEASE SPRING-SET BRAKE

A complete package press that offers a high degree of dependability and accessibility. Available as either a "flying cutoff" or high speed dieing machine. Up to 700 strokes per minute. Write for details.

**Safety Margin**—Best advice for starting out in cold extrusion is to build your tools as rugged as possible; start with the simple shapes use a press that's plenty big and be sure your phosphate coating is sufficiently heavy to do the job. You can work up or down from that point, but you have covered your self from the start.

Much of the information and experience gained through cold extrusion of steel in this country is available now. All manufacturers of phosphate coatings have been involved on several cold extrusion programs and have had experience not only in lubrication of the steel, but in die design and every other phase of the program. Many press builders also are ready to supply information.

Heintz Mfg. Co., Philadelphia has completed a \$7 million installation of cold extrusion capacity. Much of this capacity will be devoted to Ordnance work, but even now civilian products are entering into the picture there.

Mullins Mfg. Corp., Salem, O. is also concentrating on the commercial applications of the process and has worked out dies for complicated shapes.

As cold working of steel makes the shift to civilian production more will be learned. The process is still in its infancy. But it's a healthy, kicking infant and it's bound to grow.

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**Y**es, it is big and it is tough—it has to be! It's in a modern "torture chamber".

This ENDURO Stainless Steel expansion joint—thirteen feet in diameter—is part of an aircraft laboratory wind tunnel.

Eight of these giants are installed in the header between primary and secondary coolers of altitude exhaust ducts. They handle gases from full scale thermal jet engines, reciprocating engines, turbines, burners and other equipment tested in simulated high altitude conditions. Working pressures range from vacuum to 60 pounds... temperatures as low as -50° F. There's punishment aplenty.

Here's another application in which Republic ENDURO Stainless Steel demonstrates its great strength, toughness, resistance to heat and corrosion... and its fabricating possibilities. Where can you use these qualities? Write Republic for suggestions about applying ENDURO advantages to your own products and processes. No obligation, of course.

**REPUBLIC STEEL CORPORATION**

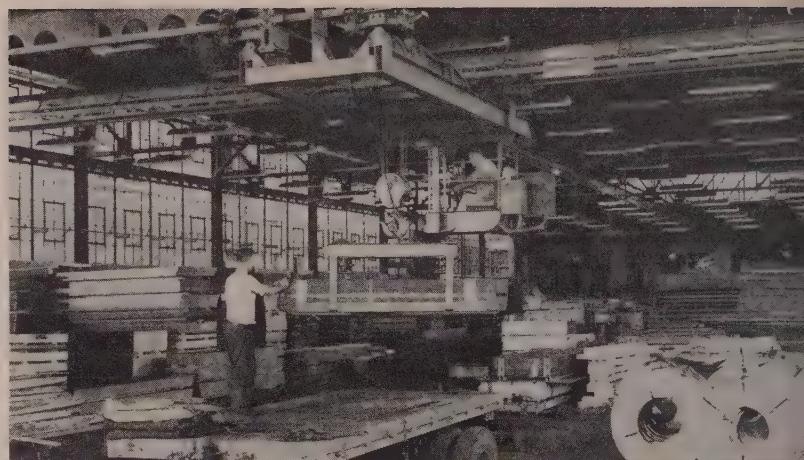
*Alloy Steel Division • Massillon, Ohio  
GENERAL OFFICES • CLEVELAND 1, OHIO*  
Export Department: Chrysler Bldg., New York 17, N.Y.

*Zallea Brothers, Wilmington, Delaware, use ENDURO Stainless Steel in manufacturing expansion joints of all sizes. Under the Zallea process, there are no circumferential welds in the corrugated section subject to flexing stresses.*

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**ENDURO STAINLESS STEEL**

**Other Republic Products include Carbon and Alloy Steels—Pipe, Sheets, Tubing, Lockers, Shelving, and Fabricated Steel Building Products**

**Moving 150 tons of steel per day with one handling between truck and storage cut man-hours to one-third. Unexpected advantage is the increased output of the six shears**



Motor-operated grab, controlled from the crane cab, moves sheet steel in 5-ton bundles at the unloading dock. Trucks are usually released in about 20 minutes

## ***Warehousing Moves Overhead***

**STEEL WAREHOUSING** at Art Metal Construction Co. is an overhead operation all the way from the truck unloading dock. The Jamestown, N. Y., firm uses a 5-ton, 48-foot span, three-runway crane to serve its entire warehousing setup.

Art Metal's warehouse is built to take 4000 tons capacity of steel to be used for the firm's office furniture manufacturing business. Metal ranges from 22 to 52 inches wide, is usually 120 inches long. It varies from 30-gage to  $\frac{3}{8}$ -inch and is stacked 7 feet high. Even in this relatively small-capacity operation, the crane's coverage and flexibility mean speed and lower handling cost.

**No Rehandling** — The company receives up to 15 truckloads, or 150 tons, of steel in a day's work. Before making the crane installation, they unloaded trucks with a chain hoist, transferring the steel to floor trucks which handled it thereafter.

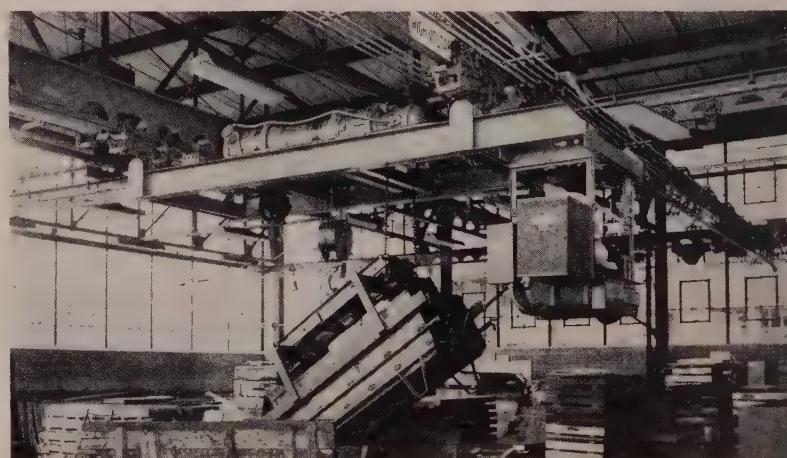
Eliminating detours, the Tramrail crane takes steel directly from trucks to storage without rehandling. One man in the cab, plus another on the floor, take care of the entire transfer job. According to Art Metal, manhours required for the job have been cut to about one-third the previous figure.

**Unloading** — In its unloading function, the crane clears 5-ton sheet bundles quickly from trucks at the dock using the motor-operated grab controlled from the cab. While increased convenience and reduced manpower are strong points, the real gain is in timesaving: Where dockmen formerly struggled 3 to 3½ hours to unload a truck, vehicles now are usually gone in 20 minutes.

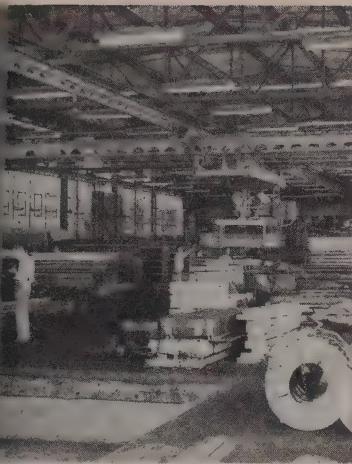
Of course, some simple variations are possible to lend flexibility to the

equipment. One is a quick-change feature wherein the motor-operated grab is detached and chain slings substituted to handle coils. Among the best unloading times racked up by dock men are figures as low as 11 minutes. Such times naturally lead to greater co-operation from trucking companies, who are enthusiastic about fast releases.

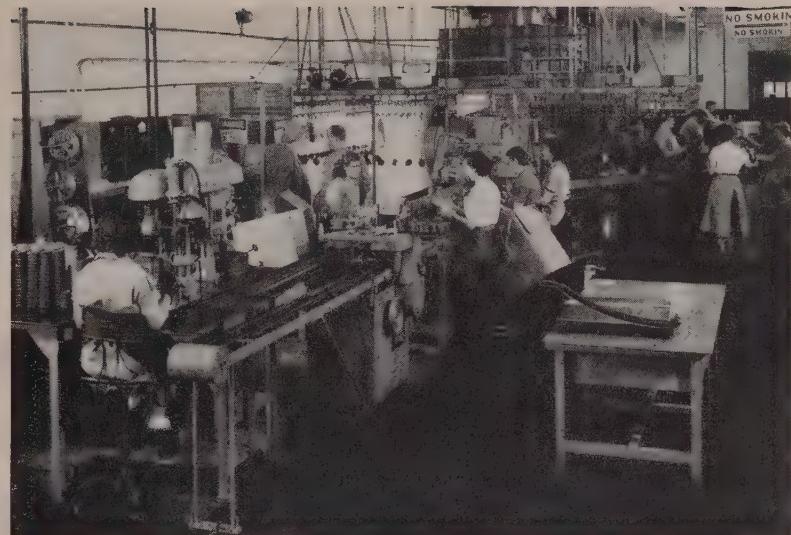
**Feeding** — Dock men aren't the only ones promoting the overhead setup. Not anticipated originally, but definitely welcome, is a marked



Long awkward strips of scrap are accumulated in tote box, then conveyed by specially-built grab. Box is emptied into truck by attaching two chains from the Tramrail carrier to grab and lowering the hoist, thus tipping box



Crane floor coverage minimizes aisle space and increases storage capacity



## Production Canning Stretches Bearing Storage Life

CORROSION becomes a primary consideration when tapered roller bearings must be stored for long periods.

When this problem was posed to Timken Roller Bearing Co. two years ago, the firm set out to define a method that would permit packaging for storage periods up to 10 years. Needed at the same time was a production line that wouldn't bottleneck packaging and shipping operations.

**Pilot Line First**—An experimental line revealed the type of canning equipment necessary to handle anticipated output. Originally, planning called for canned bearings to be dipped in paint. But the experimental setup proved electrostatic painting more effective, gaining longer protection to contents of the cans, with a more uniform coat of paint.

Some other results of the pilot line: Manhours were saved and units of production per manhour were increased by more efficient placement and tooling of machines. Storage facilities were revamped to meet space requirements, and testing equipment for the packaged bearings was perfected.

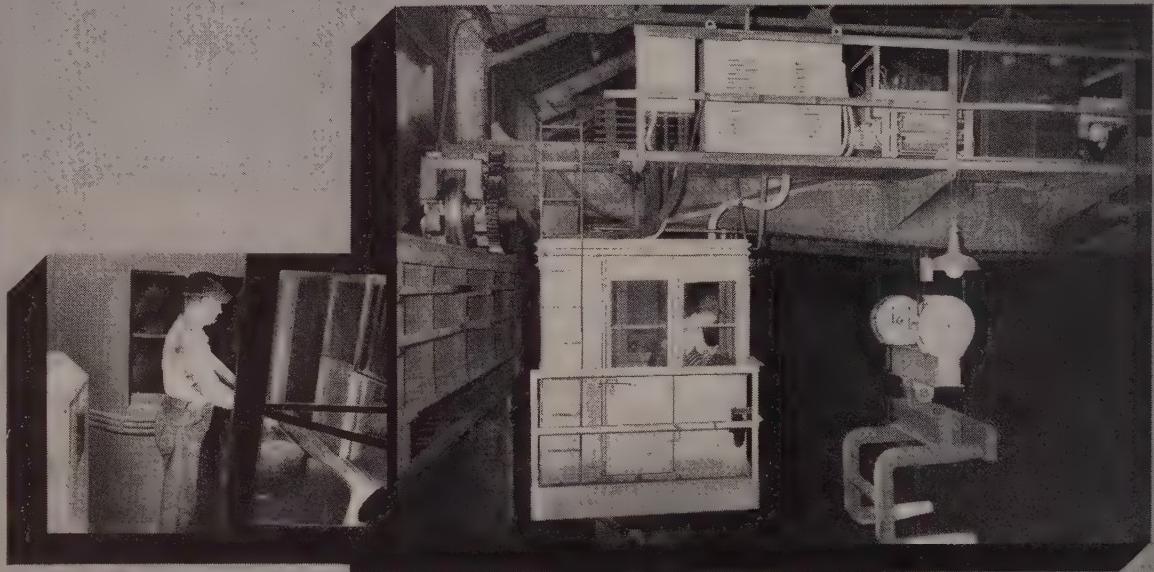
**Then the Real Thing**—When bearings are taken from the end of the production line to be transported to the canning line, they have been cleaned thoroughly of all foreign matter, even fingerprints. Unpacked from their cardboard box containers at one end of the new packaging line, each piece is in turn greased, wrapped, canned, sealed, spray painted, dried in an infra-red oven, identified, packaged in intermediate cardboard containers, then placed in special lined wooden shipping crates.

Special precautions are taken when packing the bearings. A neutral dunnage material prevents possible damage by movement of bearing. Hermetically sealed, the painted can locks out all air and moisture. Packaged and crated bearings are then conveyed to the shipping dock.

**Capacity**—The new production setup runs canned bearings off the line at a rate of 750 per hour. Cost of materials employed in the canning process is cut approximately in half, compared with the old method of packaging the units in scrim bags, reports Timken.

To clean up small scrap, another box has trunnions located below the center of gravity. A lever on the grab releases a lock, permitting the box to turn over and empty.

# CRANE CAB operating temperatures lowered 65° to 70° F. at Hot Slab Mill



## DRAVO SPLIT-TYPE CRANE CAB COOLER INSTALLED AT PITTSBURGH STEEL CO.

Hot slab mill operations produce ambient temperatures in summer of 150° F., creating a major working hazard for crane operators working over these "hot spots."

Pittsburgh Steel Company at Monessen, Pa., eliminated this hazard with a Dravo split-type Crane Cab Cooler. With the condenser section mounted on the crane and the conditioning section in the cab, crane cab temperatures are kept at 80° to 85° F. regardless of sudden temperature changes outside. Crane operators are healthier, more alert and more efficient.

## CRANE CAB COOLERS PROVIDE YEAR-'ROUND AIR CONDITIONING

Dravo Crane Cab Coolers are ruggedly constructed, factory assembled and pre-tested to provide years of more-than-satisfactory service. All equipment in the unit is readily accessible with ample space for quick and efficient maintenance.

In the various air conditioning functions the crane cab cooler not only filters the air, removes dust, dirt and fumes, but heats the

cab in winter, cools it in summer and provides constant ventilation the year around.

## AVAILABLE IN SINGLE OR SPLIT-TYPE UNIT: IMMEDIATE DELIVERY

Dravo Crane Cab Coolers are built in two models—the self-contained unit, mounted on any available space on the crane and the new split-type unit where the condenser section is mounted on the crane, with the conditioning section in cab.

The Dravo Crane Cab Cooler can be easily and quickly installed on any type of crane with a minimum of down-time required. Units are available now! Write for more information—or phone the nearest Dravo Office and have our representative call on you. Ask for Bulletin Q-130



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## xtrusion Scale Checked

Localized reducing atmosphere envelops extrusion as it leaves the die. Works automatically

FORMATION of hard refractory scale when extruding some of the upper alloys is effectively prevented by enveloping the extruded material in a made-to-order deoxidizing atmosphere as it leaves the extrusion die.

Atmosphere is a mixture of the inert gas, nitrogen, with Gasflux, deoxidizing vapor flux which is widely used in brass and silver alloy brazing to prevent oxidation.

**Gaseous Blanket**—The flux, in liquid form, is dispensed from a specially constructed container through which the nitrogen gas flows and picks up a controlled amount of flux. Mixture is discharged through a perforated ring held against the outside face of the extrusion die, so that as the hot metal emerges it is immediately blanketed.

A simple arrangement of commercially available valves and controls makes the supply of scale-preventive gas mixture practically automatic. Pressure switch connected to the hydraulic line of the extrusion press is set to activate a solenoid valve, with which it is



## Stratocruisers: Production Doubled from 1952

Five giant aft fuselage sections for the Boeing C-97 Stratocruiser are shown being loaded for simultaneous shipment from Ryan Aeronautical Co. yards in San Diego, Calif. The company rearranged machine tools and added jigs in the same working area to almost double output over 1952 average. The versatile C-97's can serve as cargo carrier, flying ambulance, troop transport or aerial tanker

tected from contact with atmospheric oxygen. On some alloys the formation of scale is wholly prevented; on others it is greatly reduced. The result is a considerable saving in costly cleaning and pickling operations.

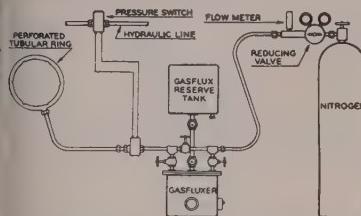
## Sells "Tamed" Radioactivity

Inexpensive radioisotopes are being bottled and sold "over the counter" or by mail by Fisher Scientific Co., Pittsburgh.

Fisher officials say: Users need no Atomic Energy Commission authorization . . . no formal training at Oak Ridge . . . no elaborate safety precautions.

Sold in microcuries, the radioactive reagents come in 25 different compounds for use in industrial laboratories. Radioactive substance is carbon-14.

Reagents come in a small screw-capped glass vial whose walls absorb all radiation of the contents. Total radiation per vial is one microcurie or 37,000 disintegrations per second. Reagents are contained in 0.00014 ounce of chemically pure compound like benzoic acid, sucrose or urea. (Users may specify the compound to be used). Ac-



SCHEMATIC OF DEOXIDIZER  
... gas rings face of extrusion die

connected electrically, to turn on gas at a predetermined pressure.

**Works Automatically**—Gas pressure is regulated by a reducing valve and flow meter at the outlet of the nitrogen gas cylinder. When the hydraulic pressure is built up sufficiently to force the bar material through the die, the gas flow starts automatically and continues until the extrusion operation is complete and pressure is reduced, closing the solenoid valve.

Hot extruded metal is thus pro-

cured to the company, vials may be packed together in large numbers without fear of radiation hazard.

Carbon-14, which has a half life of 5700 years, is highly sensitive. Atoms can be detected and followed independently of all other atoms in a system.

## Utility Press Has High Output

Continuous strip-broaching and burnishing of approximately 1800 automotive rocker arms per hour is achieved on a Colonial 10-ton, 36-inch stroke utility press. With complete tooling by Colonial Broach Co., Detroit, the installation includes indexing table fixture plus automatic ejection.

After broaching, the rocker arms simply drop through slots in the indexing table, and through a chute into a container. The operator merely drops parts in recesses of the table as it indexes past him.

Machine operation is continuous. Rocker arms are broached four at a time, approximately 0.010-inch stock being removed. Burnishers on the broaches reduce drag on the return stroke, permitting fast strip-broaching with long tool life.



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The application of Cold-Flow techniques produces accuracy, tensile strength and clean dimensions to supply a stronger fastening through free-cutting, snug-fitting penetration.

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603 Eighteenth Avenue • Rockford, Illinois

"PRODUCTION-DESIGNED FOR YOUR ASSEMBLY LINES"

## CALENDAR OF MEETINGS

August 17-19, Society of Automotive Engineers: International West Coast meeting, Georgia hotel, Vancouver, B. C. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

August 19-21 Institute of Radio Engineers: Western electronic trade show and convention, Civic auditorium, San Francisco. Business office: 1355 Market St., San Francisco 3. Business manager: Heckert Parker.

August 23-26, National Automatic Merchandising Association: Annual convention and exhibit, Hotel Conrad Hilton, Chicago. Association address: 7 S. Dearborn, Chicago. Secretary: C. S. Darling.

September 1-4, American Institute of Electrical Engineers: Pacific general meeting, Hotel Vancouver, Vancouver, B. C. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.

September 8-11, American Chemical Society: Fall meeting, Hotel Conrad Hilton, Chicago. Society address: 1155-16th St., NW, Washington 6, Assistant secretary: R. M. Warren.

September 10-12, Rocky Mountain Management Club: Rocky Mountain industrial exposition, University of Denver arena. Club address: 1031 15th St., Denver 2. Executive secretary-treasurer: Harold S. Craig.

September 13-16, Electrochemical Society Inc.: Fall meeting, Ocean Terrace hotel, Wrightsville Beach, N. Carolina. Society address: 216 W. 102nd St., New York 25. Secretary: Dr. Henry B. Linford.

September 14-15, American Hot Dip Galvanizers Association, Inc.: Semi-annual meeting, Statler hotel, Cleveland. Association address: 1506 First National Bank Bldg., Pittsburgh 22. Secretary-treasurer: Stuart J. Swensson.

September 14-16, Allied Railway Supply Association: Annual meeting, Hotel Sherman, Chicago. Association address: 1200 W. Chase Ave., Chicago 26, Secretary: Charles F. Weil.

September 17-18, National Foundry Association: Annual meeting, Plaza hotel, New York. Association address: 58 W. Jackson Blvd., Chicago 4. Executive secretary: Charles T. Sheehan.

September 20-23, Packaging Machinery Manufacturers Institute: Annual meeting, Skypoint Lodge, Skypoint, Pa. Institute address: 34 Madison Ave., New York 17. Secretary-treasurer: Helen L. Stratton.

September 20-23, American Institute of Wholesale Plumbing & Heating Supply Association Inc.: Annual convention, Hotel Waldorf-Astoria, New York. Institute address: 402 Albee Bldg., Washington. Executive secretary: George T. Underwood.

September 21-22, Steel Founders' Society of America: Fall meeting, The Homestead, Hot Springs, Va. Society address: 920 Midland Bldg., Cleveland. Secretary: F. Kermit Donaldson.

September 21-23, Truck Body & Equipment Association Inc.: Annual meeting, Sheraton-Gibson hotel, Cincinnati. Association address: 1122 DuPont Circle Bldg., Washington 6. Executive manager: Arthur J. Nuese.

September 21-24, American Mining Congress: Annual metal and nonmetallic mineral mining convention, Olympic hotel, Seattle. Congress address: 1102 Ring Bldg., Washington 6. Executive vice president: Julian D. Conover.

September 21-25, Instrument Society of America: National instrument conference and exhibit, Hotels Morrison and Sherman, Chicago. Society address: 1319 Allegheny Ave., Pittsburgh. Manager: P. V. Jones Jr.

September 23-26, National Association of Foremen: Annual convention, Milwaukee. Association address: 321 W. 1st St., Dayton 0.

September 28-October 1, Association of Iron Steel Engineers: Annual meeting, Hotel William Penn, Pittsburgh. Association address: 1010 Empire Bldg., Pittsburgh. Managing director: T. J. Ess.



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## LEADERS IN IRON AND STEEL SCRAP SINCE 1889

July 27, 1953

# Market Outlook

PERSISTENTLY strong demand for steel products in most categories is giving impetus to a rising wave of cautious optimism as to last-quarter prospects. Considering seasonal influences in the market currently, midsummer may not be the best vantage point for appraising the steel outlook. But from the way the mills are booking fourth-quarter delivery orders there appears little reason to anticipate much, if any, letdown in high-level activity over the remainder of the year.

**REVISING ESTIMATES**—Forward tonnage is not being snapped up quite as quickly as on some previous quarterly openings of order books. Still, consumer interest exceeds expectations. As a result, many who had been predicting a noticeable recession in consumption toward the tag end of the year are now revising demand estimates upward. Actually, insofar as hot and cold-rolled sheets, large size bars, plates and most sizes of structurals are concerned, pressure on the mills is as strong as ever.

**CONFIDENCE BOLSTERED**—Not only are fourth-quarter orders being booked at a surprisingly brisk pace, but market confidence is supported by the fact numerous consumers, dissatisfied with their allotments, are pressing for more tonnage. Lending further support, mill order books currently are overloaded and some producers already have blanketed out part of last-quarter schedules to care for the indicated unfilled order overflow from summer. And contributing still another encouraging note is absence of important cancellations.

**CAUTION PRESENT**—Despite the growing optimism in steel circles, it doesn't necessarily follow all reservations for last quarter are

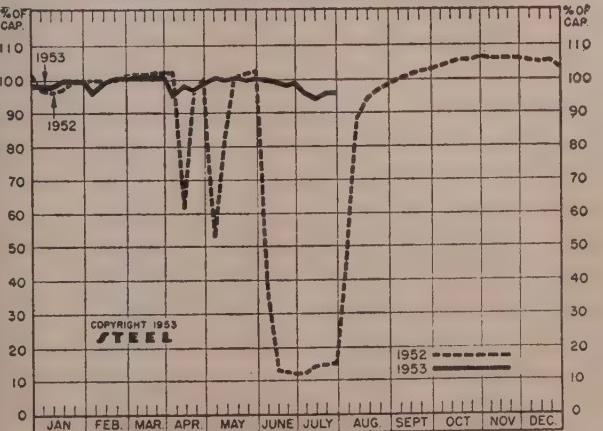
being thrown aside. Far from it. Consumers certainly are displaying more caution placing orders. They are shying away from fourth-quarter commitments for conversion and premium-price steel, though some still are dependent on warehouses and importers for tonnage to round out current requirements. Generally, the belief prevails that supply-demand balance is not too distant in many products.

**AUTOS HOLD ANSWER**—The view that as the automotive industry goes so will go steel is quite generally accepted. Currently auto production is in high gear. Some independent builders have curtailed, however, and the belief persists that come fourth quarter a general letdown in auto manufacture will be experienced, reflecting slower demand for cars and model changeovers. The auto industry, which recently resumed first place among steel consuming classifications, in the first five months of this year took 19.7 per cent of total steel shipments. Any severe slackening of automotive demand could turn a supply shortage into a surplus quickly.

**PRICES ARE STEADY**—All of the markets are well stabilized pricewise. Except for downward revisions in quantity extras on two brackets in the cold-finished bar schedule, and announcement by one fastener manufacturer of new gross lists applying to all types and sizes of nuts, important price changes are absent. The new schedule on nuts replaces one in vogue the past 26 years and reflects improvements in manufacturing processes and techniques.

**OPERATIONS**—Steel ingot output held steady last week at 96 per cent of capacity. This was equivalent to production of about 1,165,000 tons.

NATIONAL STEELWORKS OPERATIONS

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STEEL

DISTRICT INGOT RATES

(Percentage of capacity engaged at leading production points)

Week Ended	Change	Same Week	1952	1951
July 25				
Pittsburgh	.98	0*	7	94
Chicago	100	+ 1.5*	5	104.5
Mid-Atlantic	97.5	-	17	101
Youngstown	106	+ 1	6	105
Wheeling	99	+ 1	49.5	94.5
Cleveland	99.5	- 2*	0	101
Buffalo	108.5	0	0	104
Birmingham	100	- 1	0.5	100
New England	48	+ 3	20	94
Cincinnati	91	- 7	37	101
St. Louis	95.5	0	96.5	97
Detroit	107	- 1	49	101.5
Western	104	+ 4	36	105
Estimated National Rate	96	0	15.5	101.5

\*Change from preceding week's revised rate.  
Weekly steelmaking capacity is estimated at 2,254,459 net tons in 1953; 2,077,040 tons in 1952; 1,999,034 tons in 1951.

## Composite Market Averages

FINISHED STEEL PRICE INDEX: Bureau of Labor Statistics (1947-1949=100)	July 21	July 14	Month Ago	July Average
	141.8	141.8	136.3	141.8

## AVERAGE PRICES (BUREAU OF LABOR STATISTICS)

Week Ended July 21, 1953

Units are 100 lb except where otherwise noted. For description see insert following p. 28, STEEL, Sept. 8, 1952. Revised as of April, 1953, to reflect broader base.

Rails, standard No. 1..	\$4.400	Strip, C.R. carbon .....	\$7.371
Rails, light, 40 lb... .	5.767	Strip, C.R. stainless, 430, (lb) .....	0.415
Plates, carbon .....	4.550	Strip, H.R. carbon .....	5.113
Structural Shapes .....	4.383	Pipe, black, buttweld (100 ft) .....	14.454
Bars, tool steel (lb) .....	1.730	Pipe, galv., buttweld (100 ft) .....	17.895
Bars, H.R. carbon .....	4.850	Tin Plate, hot-dipped, 1.25 lb .....	8.433
Bars, reinforcing .....	4.775	Tin Plate, electrolytic, 0.25 lb .....	7.133
Bars, C.F. carbon .....	7.860	Black Plate, can making .....	6.233
Bars, C.F. alloy .....	11.075	quality .....	6.233
Sheets, H.R. carbon .....	4.785	Wire, carbon, 8 gage .....	7.713
Sheets, C.R. carbon .....	5.904	Wire, stainless, 430, (lb) .....	0.542
Sheets, galvanized .....	7.015	Bale Ties (bundle) .....	5.653
Sheets, C.R. stainless, 302, (lb) .....	0.548	Nails, wire, 8d common .....	7.530
Sheets, electrical grade .....	9.017	Wire, barbed (80 rod spool) .....	6.847
		Woven Wire Fence (20 rod roll) .....	16.174

## FINISHED PRICE INDEX, Weighted:

Calculated by STEEL\*

	July 23	Week Ago	Month Ago	Year Ago	5 Yrs Ago
Index (1935-39 av.=100)..	189.33	189.33	187.73	181.31	143.08
Index in cents per lb. ....	5.129	5.129	5.086	4.912	3.876

## ARITHMETICAL PRICE COMPOSITES:

Calculated by STEEL\*

Finished Steel NT .....	\$114.88	\$114.88	\$113.44	\$106.32	\$95.05
No. 2 Fdry, Pig Iron, GT .....	56.54	56.54	55.04	52.54	42.20
Basic Pig Iron, GT .....	56.04	56.04	54.68	52.16	42.01
Malleable Pig Iron, GT .....	57.27	57.27	55.77	53.27	42.60
Steelmaking Scrap, GT .....	43.42	43.42	40.50	42.67	41.67

\*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130.

## Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

## FINISHED MATERIALS

	July 23	Week Ago	Month Ago	Year Ago	5 Yrs Ago
Bars, H.R., Pittsburgh .....	4.15	4.15	4.15	3.70	3.45
Bars, H.R., Chicago .....	4.15	4.15	4.15	3.70	3.35
Bars, H.R., del. Philadelphia .....	5.302	5.302	5.302	4.252	3.79
Bars, C.F., Pittsburgh .....	5.20	5.20	5.20	4.55	3.95
Shapes, Std., Pittsburgh .....	4.10	4.10	4.10	3.65	3.25
Shapes, Std., Chicago .....	4.10	4.10	4.10	3.65	3.25
Shapes, del., Philadelphia .....	4.38	4.38	4.38	3.93	3.48
Plates, Pittsburgh .....	4.10	4.10	4.10	3.70	3.50
Plates, Chicago .....	4.10	4.10	4.10	3.70	3.40
Plates, Coatesville, Pa. ....	4.35	4.35	4.35	4.15	3.75
Plates, Sparrows Point, Md. ....	4.10	4.10	4.10	3.70	3.45
Plates, Claymont, Del. ....	4.55	4.55	4.55	4.15	3.95
Sheets, H.R., Pittsburgh .....	3.925	3.925	3.925	3.60-75	3.275
Sheets, H.R., Chicago .....	3.925	3.925	3.925	3.60	3.25
Sheets, C.R., Pittsburgh .....	4.775	4.775	4.775	4.35	4.00
Sheets, C.R., Chicago .....	4.775	4.775	4.775	4.35	4.00
Sheets, C.R., Detroit .....	4.975	4.975	4.975	4.55	4.20
Sheets, Galv., Pittsburgh .....	5.275	5.275	5.275	4.80	4.40
Strip, H.R., Pitts. .... 3.975-4.425 3.975-4.425 3.975-4.225 3.75-4.00 3.275	3.975	3.975	3.975	3.75	3.275
Strip, H.R., Chicago .....	3.925	3.925	3.925	3.50	3.275
Strip, C.R., Pittsburgh .....	5.45-5.95	5.45-5.95	5.45-5.95	5.45-5.70	4.65-5.35
Strip, C.R., Chicago .....	5.70	5.70	5.70	4.90	4.125
Strip, C.R., Detroit .....	5.45-6.05	5.45-6.05	5.45-6.05	5.45-6.05	4.85-5.60
Wire, Basic, Pitts. .... 5.475-5.525 5.475-5.525 5.475-5.525 5.475-5.525 4.85-5.10	5.475	5.475	5.475	5.10	4.15
Nails, Wire, Pittsburgh .....	6.35-6.55	6.35-6.55	6.35-6.55	6.55	5.90-6.20
Tin plate (1.50 lb), box, Pitts. ....	\$8.95	\$8.95	\$8.95	\$8.70	\$6.70

## SEMIFINISHED

Billets, forging, Pitts. (NT) .....	\$75.50	\$75.50	\$75.50	\$66.00	\$61.00
Wire rods, 3/8"-%, Pitts. ....	4.525	4.525	4.525	4.10-30	3.45

## PIG IRON, Gross Ton

Bessemer, Pitts. ....	\$57.00	\$57.00	\$55.50	\$53.00	\$47.00
Basic, Valley .....	56.00	56.00	54.50	52.00	43.00
Basic, del. Phila. ....	60.75	60.75	59.25	56.75	46.17
No. 2 Fdry, Pitts. ....	56.50	56.50	55.00	52.50	46.50
No. 2 Fdry, Chicago .....	56.50	56.50	55.00	52.50	43.25
No. 2 Fdry, Valley .....	56.50	56.50	55.00	52.50	43.50
No. 2 Fdry, del. Phila. ....	61.25	61.25	59.75	57.25	46.67
No. 2 Fdry, Birm. ....	52.88	52.88	51.38	48.88	43.38
No. 2 Fdry, (Birm.) del. Cin. ....	60.43	60.43	58.93	56.83	49.09
Malleable, Valley .....	56.50	56.50	55.00	52.50	43.50
Malleable, Chicago .....	56.50	56.50	55.00	52.50	43.50
Ferromanganese, Etna, Pa. ....	200.00†	200.00†	188.00*	148.00*	

\*78-82% Mn, per gross ton. †74-76% Mn, per net ton.

## SCRAP, Gross Ton (Including broker's commission)

No. 1 Heavy Melt, Pitts. ....	\$44.50	\$44.50	\$42.50	\$44.00	\$42.75
No. 1 Heavy Melt, E. Pa. ....	44.25	44.25	41.50	41.50	45.50
No. 1 Heavy Melt, Chicago .....	41.50	41.50	37.50	42.50	41.75
No. 1 Heavy Melt, Valley .....	45.50	45.50	45.50	44.00	42.75
No. 1 Heavy Melt, Cleve. ....	45.50	44.50	43.50	43.00	42.25
No. 1 Heavy Melt, Buffal. ....	43.75	44.75	40.75	37.00	46.25
Rails, Rerolling, Chicago .....	54.50	54.50	49.00	52.50	64.25
No. 1 Cast, Chicago .....	41.00	41.00	39.00	45.00	70.00

## COKE, Net Ton

Beehive, Furn., Connslv. ....	\$14.75	\$14.75	\$14.75	\$14.75	\$14.25
Beehive, Fdry., Connslv. ....	16.75	16.75	16.75	17.00	17.00
Oven Fdry, Chicago .....	24.50	24.50	24.50	23.00	20.40

## PIG IRON

F.O.B. furnace prices as reported to STEEL. Minimum delivered prices are approximate and do not include 3% federal tax. Key to producing companies on page 165.

## PIG IRON, Gross Ton

	Basic	Foundry	No. 2	Malleable	Bessemer
Bethlehem, Pa. B2 .....	\$58.00	\$58.00	\$59.00	\$59.50	\$59.50
New York, del. ....	.....	.....	62.28	62.78	.....
Newark, del. ....	.....	.....	61.02	61.52	62.52
Philadelphia, del. ....	.....	.....	60.75	61.25	62.25

## Birmingham District

	52.38	52.88	52.88	52.88	52.88
Alabama City, Ala. R2 .....	52.38	52.88	52.88	52.88	52.88
Birmingham, R2 .....	52.38	52.88	52.88	52.88	52.88
Birmingham, S9 .....	52.38	52.88	52.88	52.88	52.88
Woodward, Ala. W15 .....	52.38	52.88	52.88	52.88	52.88
Cincinnati, del. ....	.....	.....	60.43	60.43	60.43

## Buffalo District

	56.00	56.50	57.00	57.00	57.00
Buffalo R2 .....	56.00	56.50	57.00	57.00	57.00
Buffalo H1 .....	56.00	56.50	57.00	57.00	57.00
Tonawanda, N.Y. W12 .....	56.00	56.50	57.00	57.00	57.00
No. Tonawanda, N.Y. T9 .....	56.00	56.50	57.00	57.00	57.00
Boston, del. ....	66.85	67.15	67.65	67.65	67.65
Rochester, N.Y., del. ....	59.02	59.52	60.02	60.02	60.02
Syracuse, N.Y., del. ....	60.12	60.62	61.12	61.12	61.12

## Chicago District

	56.00	56.50	57.00	57.00	57.00
Chicago I-2 .....	56.00	56.50	57.00	57.00	57.00
Gary, Ind. U5 .....	56.00	56.50	57.00	57.00	57.00
Indiana Harbor, Ind. I-2 .....	56.00	56.50	57.00	57.00	57.00
So. Chicago, Ill. W14 .....	56.00	56.50	57.00	57.00	57.00
So. Chicago, Ill. Y1 .....	56.00	56.50	57.00	57.00	57.00
So. Chicago, Ill. U5 .....	56.00	56.50	57.00	57.00	57.00
Milwaukee, del. ....	58.17	58.67	58.67	58.67	58.67
Muskegon, Mich., del. ....	.....	62.80	62.80	62.80	62.80

## Cleveland District

	56.00	56.50	57.00	57.00	57.00
Cleveland A7 .....	56.00	56.50	57.00	57.00	57.00
Cleveland R2 .....	56.00	56.50	57.00	57.00	57.00
Akron, O., del. from Cleve. ....	58.61	59.11	59.11	59.11	59.11
Lorain, O. N3 .....	56.00	56.50	57.00	57.00	57.00
Duluth, I-2 .....	.....	56.50	56.50	56.50	56.50
Erie, Pa. I-3 .....	56.00	56.50	57.00	57.00	57.00
Everett, Mass. E1 .....	.....	63.25	63.75	63.75	63.75
Fontana, Calif. K1 .....	.....	62.00	62.50	62.50	62.50
Geneva, Utah C11 .....	57.50	58.00	58.00	58.00	58.00
Granite City, Ill. G4 .....	57.90	58.40	58.40	58.40	58.40
Ironton, Ohio C11 .....	56.00	56.50	57.00	57.00	57.00
Lone Star, Texas L6 .....	52.00	52.50*	52.50*	52.50*	52.50*
Minnequa, Colo. C10 .....	58.00	59.00	59.00	59.00	59.00
Rockwood, Tenn. T3 .....	58.0				

# NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

## Primary Metals

**Copper:** Electrolytic 29.75-30.00c. Conn. Valley; Lake 30.125c; foreign electrolytic, del'd., 37.50-30.00c.

**Brass Ingots:** 85.5-5.5 (No. 115) 26.00c; 310c; No. 1 yellow (No. 215) 21.25c.

**Brass:** Prime western 11.00c; brass special 1.25c; intermediate 11.50c; East St. Louis.

Prime western 11.25-11.50c, brass special 1.50-11.75c, intermediate 11.75-12.00c, high grade 12.35-12.85c, special high grade 12.50-3.00c, delivered.

**Nickel:** Common 13.55c; chemical 13.65c; corrodine 13.65c; St. Louis.

**Aluminum:** 99% plus, ingots 20.50-1.50c; pigs 19.50-20.00c. Base prices for 0.000 lb and over. Freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders.

**Secondary Aluminum:** Piston alloys 22.75-3.50c; No. 12 foundry alloy (No. 2 grade) 22.00-23.00c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 23.75-14.00c; grade 2, 23.00-23.25c; grade 3, 22.00-22.25c; grade 4, 21.00-22.00c.

**Magnesium:** Commercially pure (99.8%) standard ingots, 10,000 lb and over 27.00c, f.o.b. Freeport, Tex.

**Tin:** Grade A, prompt RFC, 121.50c; outside market 78.75c.

**Antimony:** American 99.99-98% and over but not meeting specifications below 34.50c; 99.8% and over (arsenic 0.05% max., other impurities 0.1% max.) 35.00c; f.o.b. Laredo, Tex., for bulk shipments.

**Nickel:** Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 60.00c; 25-lb pigs 62.85c; "XX" nickel shot, 63.65c; "F" nickel shot or ingots, for addition to cast iron, 60.00c. Prices include import duty.

**Mercury:** Open market, spot, New York, \$191-\$194, per 76-lb flask.

**Cadmium:** "Regular" straight or flat forms, \$2 del'd.; special or patented shapes \$2.15c.

**Beryllium-Copper:** 3.75-4.25% Be, \$40.00 per lb of contained beryllium, with balance as copper at market price on date of shipment, f.o.b. Reading, Pa., or Elmore, O.

**Cobalt:** 97.99% \$2.40 per lb for 500 lb (kegs); \$2.42 per lb for 100 lb (cases); \$2.47 per lb under 100 lb.

**Gold:** U. S. Treasury, \$35 per ounce.

**Silver:** Open-market, New York \$5.25c per oz.

**Platinum:** \$93 per ounce from refineries.

**Palladium:** \$23-\$24 per troy ounce.

**Iridium:** \$165-\$175 per troy ounce.

**Titanium:** (sponge form): \$5 per pound.

## Rolled, Drawn, Extruded Products

### COPPER AND BRASS

(Cents per pound, f.o.b. mill, effective Apr. 1, 1953. Listings are lowest quotations.)

**Sheet:** Copper 50.48; yellow brass 42.87; commercial bronze, 95% 49.89; 90% 48.76; red brass, 85% 47.11; 80% 45.99; best quality, 44.43; nickel silver, 18%, 59.84; phosphor-bronze grade A, 5%, 70.50.

**Rod:** Copper, hot-rolled 46.83; cold-drawn 48.08; yellow brass free cutting, 36.68; commercial bronze 95% 49.58; 90% 48.45; red brass 85%, 46.80; 80%, 45.88.

**Seamless Tubing:** Copper 50.42; yellow brass 45.78; commercial bronze, 90%, 51.32; red brass, 85%, 49.92.

**Wire:** Yellow brass 43.16; commercial bronze, 95% 50.18; 90% 49.05; red brass, 85%, 47.40; 80%, 46.25; best quality brass, 44.72. (Base prices effective July 11, 1953)

**Copper Wire:** Bare, soft, f.o.b. eastern mills, 100,000 lb lots, 35.36; 30,000 lb lots, 35.48; i.c.l. 35.98. Weatherproof, 100,000 lb, 36.28; 30,000 lb, 36.53; i.c.l., 37.03. Magnet wire del'd., 15,000 lb or more 41.83; i.c.l., 42.58.

## DAILY PRICE RECORD

	Copper	Lead	Zinc	Tin	Alu-minum	An-timony	Nickel	Silver
July 22-23	29.75-30.00		13.55	11.00	78.75	20.50-21.50	34.50	60.00
July 21	29.75-30.00		13.55	11.00	78.25	20.50-21.50	34.50	60.00
July 20	29.75-30.00		13.55	11.00	79.75	20.50-21.50	34.50	60.00
July 17-18	29.75-30.00		13.30	11.00	80.75	20.50-21.50	34.50	60.00
July 15-16	29.75-30.00		13.30	11.00	80.50	20.50-21.50	34.50	60.00
July 14	29.75-30.00		13.30	11.00	81.00	20.50	34.50	60.00
July 13	29.75-30.00		13.30	11.00	82.00	20.50	34.50	60.00
July 8-11	29.75-30.00		13.30	11.00	83.00	20.50	34.50	60.00
July 7	29.75-30.00		13.30	11.00	82.75	20.50	34.50	60.00
July 6	29.75-30.00		13.30	11.00	84.75	20.50	34.50	60.00
July 3	29.75-30.00		13.30	11.00	87.00	20.50	34.50	60.00
July 2	29.75-30.00		13.30	11.00	88.00	20.50	34.50	60.00
July 1	29.75-30.00		13.30	11.00	89.50	20.50	34.50	60.00
June 29-30	29.75-30.00		13.30	11.00	90.50	20.50	34.50	60.00
June 26-27	29.75-30.00		13.30	11.00	91.25	20.50	34.50	60.00
June Avg.	29.875		13.213	11.00	92.918	20.50	34.50	60.00

**NOTE:** Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99% del.; Antimony, bulk f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9% base sizes at refinery unpacked. Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

## ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders. Effective Jan. 22, 1953.) Sheets and Circles: 2s and 3s mill finish c.l.

Thickness Range Inches	Widths or Diameters, In., Inc.	Sheet Base*	Coiled Base	Sheet Circle	Coiled Base
0.249-0.136	12-48	33.9	...	...	...
0.135-0.096	12-48	34.4	...	...	...
0.095-0.077	12-48	35.1	32.7	37.5	37.7
0.076-0.061	12-48	35.7	32.9	37.7	38.1
0.060-0.048	12-48	36.1	33.2	38.1	38.4
0.047-0.038	12-48	36.6	33.6	38.4	38.8
0.037-0.030	12-48	37.0	34.0	39.1	39.5
0.029-0.024	12-48	37.6	34.3	39.6	39.8
0.023-0.019	12-36	38.3	35.1	40.4	40.7
0.018-0.017	12-36	39.1	35.7	41.3	41.7
0.016-0.015	12-36	40.0	36.5	42.5	42.8
0.014	12-24	41.0	37.5	43.8	44.1
0.013-0.012	12-24	42.1	38.2	44.8	45.1
0.011	12-24	43.1	39.4	46.4	46.7
0.010-0.0095	12-24	44.3	40.5	48.0	48.3
0.009-0.0085	12-24	45.6	41.9	50.0	50.3
0.008-0.0075	12-24	47.1	43.1	51.8	52.1
0.007	12-18	48.6	44.8	54.1	54.4
0.006	12-18	50.2	46.0	59.1	59.4

\* Lengths 72 to 180 inches. † Maximum diameter, 26 inches.

**Screw Machine Stock:** 5000 lb and over.

Dia. (In.) — Round — Hexagonal—  
or distance across flats 11S-T3 17S-T4 11S-T3 17S-T4

Drawn	0.125	59.6	57.9	...	...
	0.156-0.172	50.6	48.9	...	...
	0.188	50.6	48.9	...	62.4
	0.219-0.234	47.9	46.2	...	...
	0.250-0.281	47.9	46.2	...	59.5
	0.313	47.0	46.2	...	58.8

Cold-finished	0.375-0.531	46.6	44.9	56.2	53.4
	0.563-0.688	46.6	44.9	53.4	50.2
	0.750-1.000	45.5	43.8	48.9	47.3
	1.063	45.5	43.8	48.7	45.7
	1.125-1.500	43.8	42.1	47.3	45.7

Rolled	1.563	42.7	41.0	...	...
	1.625-2.000	42.1	40.4	...	44.1
	2.125-2.500	41.1	39.4	...	...
	2.750-3.375	39.9	38.2	...	...

## LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more \$18.75 per cwt; add 50¢ cwt 100 sq ft to 140 sq ft. Pipe: Full coils \$18.75 per cwt.

Traps and bends: List prices plus 30%.

## ZINC

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more \$18.75 per cwt; add 50¢ cwt 100 sq ft to 140 sq ft. Plates, not over 12-in., 20.75-21.75c.

## "A" NICKEL

(Base prices f.o.b. mill effective Mar. 9, 1953) Sheets, cold-rolled 86.50c. Strip, cold-rolled 92.50c. Rods and shapes, 82.50c. Plates, 84.50c. Seamless tubes 115.50c.

## MONEL

(Base prices f.o.b. mill effective July 1, 1953) Sheets, cold-rolled 67.50c. Strip, cold-rolled 70.50c. Rods and shapes, 65.50c. Plates, 66.50c. Seamless tubes, 100.50c. Shot and blocks, 60.00c.

## MAGNESIUM

Extruded Rounds 12 in. long, 1.31 in. in diameter less than 25 lb 58.00-65.00c; 25 to 99 lb, 48.00-55.00c; 100 lb to 5000 lb, 44.00c.

## TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill) Sheets, \$18; sheared mill plate, \$12; strip, \$15; wire, \$10; forgings, \$6; hot-rolled and forged bars, \$8.

## Plating Materials

**Chrome Acid:** 99.9% flakes, f.o.b. Philadelphia, carloads 27.00c; 5 tons and over 27.50c; 1 to 5 tons, 28.00c; less than 1 ton 28.50c.

**Copper Anodes:** Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed: Flat, rolled, 42.18c; oval 41.68c.

**Nickel Anodes:** Rolled, oval, carbonized, carloads 81.00c; 5000 to 29,999 lb, \$3.00c; 500 to 499 lb, 85.00c; 1 to 499 lb, 89.00c, f.o.b. Cleveland.

**Nickel Chloride:** In 100 lb bags; 10,000 lb and over, 37.00c; 5000 to 9999 lb, \$38.00c; 400 to 4999 lb, 40.00c; 300 lb 42.00c; 200 lb, 43.00c; 100 lb, 45.00c, f.o.b. Cleveland.

**Sodium Stannate:** 25 lb cans only, less than 100 lb to consumers 64.4c per lb; 100 to 350 lb drums only, 100 to 600 lb, 50.5c; 700 to 1900 lb, 48c; 2000 to 9999 lb, 46.2c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers. Based on 79-cent tin.

**Tin Anodes:** Bar, 1000 lb and over, 95c; 500 to 999 lb, 95.5c; 200 to 499 lb 96c; less than 200 lb, 97.5c. Freight allowed east of Mississippi and north of Ohio and Potomac. Based on 79-cent tin.

**Stannous Sulphate:** 100 lb kegs or 400 lb bbl, less than 2000 lb 86.8c; more than 2000 lb, 84.8c. Freight allowed east of Mississippi and north of Ohio and Potomac rivers. Based on 79-cent tin.

**Stannous Chloride (Anhydrous):** In 400 lb bbl, 97c; 100 lb kegs 99.4c, f.o.b. Carteret, N. J.; freight allowed on 100 lb or more. Based on 79-cent tin.

**Zinc Cyanide:** 100 lb drums, less than 10 drums 54.30c, 10 or more drums, 52.30c; f.o.b. Niagara Falls, N. Y.

## Scrap Metals

### Brass Mill Allowances

(Prices in cents per pound for less than 20,000 pounds, f.o.b. shipping point; on lots over 20,000 pounds at one time of any or all kinds of scrap, add 1 cent per pound.)

Clean	Heavy	Ends	Turnings
Copper	28.625	28.625	27.875
Yellow Brass	21.375	21.125	19.625

Commercial Bronze	95%	90%
	27.250	27.000

Red Brass	85%	80%
	25.125	24.875

Best Quality (71-80%)	22.500	22.250	21.750
	20.000	19.750	19.250

Muntz metal	20.000	19.750	19.250
	25.250	25.000	12.625

Phos. Bronze, A	30.625	30.375	29.375
	20.000	19.750	19.250

Naval Brass	20.000	19.750	19.250
	20.000	19.750	19.250

Manganese Bronze	

# Nonferrous Metals

**Zinc and aluminum join copper on multiple pricing, but probably not for long. Zinc buyers face three price levels. Reynolds' labor negotiations cause two levels in aluminum**

MULTIPLE PRICE STRUCTURE that has prevailed so long in copper has spread to other metals.

Three separate price levels prevail for zinc and two for aluminum, though none should last for long. Upheaval in zinc pricing is splitting the industry—and temporarily the normal market for various producers. American Smelting & Refining Co.'s delivered price system for zinc has gained a substantial number of advocates in industry who believe it wipes out an "anachronistic practice."

**Bandwagon**—American Metal Co. came up with a variation on Asarco's theme, setting up a flat 11.50 cent delivered price anywhere in the U. S. Asarco's delivered price is 11.25 east of the Rockies and 11.50 to the west. Other producers still quote 11.00 cents plus freight from St. Louis.

Leading diecasting alloy producers hiked selling prices last week by a quarter-cent to 15.75 cents, delivered. High grade and special high, which have been sold all long on a delivered basis, now are quoted at 12.35-12.85 and 12.50-13.00, respectively. In prime western, consumers are getting a price cut ranging from \$7 to \$12 a ton in big eastern consuming areas, with Pittsburgh area benefitting particularly because it uses large tonnages of zinc.

**Reluctant**—Zinc producers maintaining the St. Louis base argue that contracts, such as those for ore and concentrates, must be revised to conform with the new system. St. Joe is understandably reluctant to switch over because of the advantage it has in the Pittsburgh district with its Josephtown, Pa., smelter.

Buyers aren't eager to place orders until the price waters get calmer, but importers are already worrying about losing seaboard markets, which use over half the prime western consumed in the country today. So far this year imports of zinc slab and concentrates—averaging 58,000 tons monthly—have outstripped domestic mine production by about 7000 tons a month.

**Aluminum Too**—Kaiser Aluminum & Chemical Corp. followed Alcoa's price increase on pig and ingot and is computing new schedules on fabricated products following signing of a

new wage agreement with USW-CIO. Affecting nearly 6000 employees, the settlement also gives an 8.5 cent raise at five reduction and fabricating plants.

Aluminum Import Corp., sales agent for Aluminum Co. of Canada, also raised selling prices, but Reynolds Metal Co. held at the old level while sweating out labor negotiations, thus creating the price spread of 20.50-21.00 for ingots and 19.50-20.00 for pigs.

## Aluminum Contract Endangered

Contract between Aluminium Ltd. and Aluminum Co. of America for 600,000 tons of Canadian metal over the next six years will go out the window if the government has its way. In an action brought last week in the U. S. District Court in New York, the Justice department seeks to cancel the contract between the companies and have the court set a limit on the amount of metal Alcoa can buy from Alcan, Aluminum's producing subsidiary.

Attorney General Herbert Brownell told the court that "unless the contract is canceled, it will deter, delay and prevent efforts of the government to promote competitive conditions." Mr. Brownell argued that the third round aluminum expansion program might be jeopardized if the contract stands. The petition also asks the court to end a 1951 judgment in which Alcoa was directed to sell its shares in Aluminium declaring that the trustees designated

to exercise voting rights have lost control and there exists now only a "fictional separation" between the two.

## Nonferrous Briefs

• Defense Minerals Exploration Administration through June has executed 517 contracts aimed at discovery and development of critical and strategic minerals. Of the estimated total exploration costs of \$25 million, the government agreed to pay \$15 million.

• Bolivian tin exports so far this year are running highest since 1948, and at an annual rate of nearly 37,000 tons, reports the International Tin Study Group.

There's no letup in tin's woes. The metal is now at about the pre-Korea level and continues slumping abroad. Buyers, who have been burned several times by placing orders before a price break, are sitting on their hands this time. International Tin Study Group may ponder cutting tin output by 30,000 tons, the estimated annual surplus, when it next meets in Brussels.

• A Chilean government decree has established a "National Copper Corp." to bring under state control the whole copper problem.

## Miners Authorize Strike

Asking 15 cents an hour raise from copper mining companies, International Union of Mine, Mill & Smelter Works membership voted nine to one to authorize strikes at 39 properties last week. No walkouts will be called unless negotiations break down. Bargaining has been underway since May at most mines. Anaconda, Kennecott and Asarco contracts expired June 30. Phelps Dodge Corp. contract lapses July 31.

## Lead Continues Gains of First Six Months

Lead markets have gained strength markedly in the past two weeks, enough so as to send the price inching up to 13.75 cents, New York basis, and promising to hit the 14 cent level quickly. An advancing

London market recovery in European demand and return of U. S. consumers from vacations were chief reasons for the rise. July orders are still coming in, and spot metal is scarce. August ordering is heavy.

	First six months	1952	1953
Production of refined lead .....	267,507	260,684 tons	
Shipments of refined lead .....	247,123	226,701 tons	
Stocks at refineries .....	56,569	63,879 tons	
Shipments to battery makers .....	42,543	32,281 tons	
Shipments to cable makers .....	36,688	36,935 tons	
Shipments to ammunition makers .....	18,727	14,004 tons	

Source: American Bureau of Metal Statistics

## ECONOMICAL WATERAIL DELIVERY

from

*Newport Steel*



Beyond the quality of steel itself, important factors in every customer's requirements are good service and prompt delivery. Newport stands high on every count. Situated in the great Cincinnati rail hub and on the Mississippi-Ohio River system, our plants have access to seven major railroads and extensive river barge

routes. The result is economical delivery to America's fastest growing industrial area, the Middle West and South. Strategic location, an uninterrupted record of 68 years of fine steelmaking, a continuing program of modernization and integration, all combine to make Newport your logical source of better steel.

### PRODUCTS OF NEWPORT STEEL

- Hot-Rolled Steel in Coil
- Hot-Rolled Pickled Steel in Coil
- Electric Weld Line Pipe
- Hot-Rolled Sheets
- Galvanized Sheets
- Galvannealed Sheets
- Colorbond Sheets
- Hot-Rolled Pickled Sheets
- Electrical Sheets
- Alloy Sheets
- Roofing and Siding
- Eave Trough and Conductor Pipe
- Culverts

*Newport Steel*  
CORPORATION

NEWPORT, KENTUCKY

## STEEL PRICES

Mill prices as reported to STEEL, cents per pound except as otherwise noted. Charges shown in italics.  
Code numbers following mill points indicate producing company; key on page 125. Key to footnotes, page 127.

**SEMITFINISHED—**

**INGOTS, Carbon, Forging (NT)**  
Fontana, Calif. K1 ..... \$36.00  
Munhall, Pa. U5 ..... 59.00

**INGOTS Alloy (NT)**

Detroit R7 ..... \$63.00  
Fontana, Calif. K1 ..... 88.00  
Midland, Pa. C18 ..... 62.00  
Munhall, Pa. U5 ..... 62.00

Roebling, N.J. R5 ..... 4.425  
So. Chicago, Ill. R2 ..... 4.525  
SparrowsPoint, Md. B2.4.625  
Sterling, Ill. (1) N15 ..... 4.525  
Struthers, O. Y1 ..... 4.525  
Torrance, Calif. C11 ..... 5.325  
Worcester, Mass. A7 ..... 4.825

Lackawanna, N.Y. B2 ..... 4.10  
Minnequa, Colo. C10 ..... 4.95  
Munhall, Pa. U5 ..... 4.10

Pittsburgh J5 ..... 4.10

Riverdale, Ill. A1 ..... 4.10

Seattle, B3 ..... 5.00

Sharon, Pa. S3 ..... 4.10

So. Chicago, Ill. U5. W14 ..... 4.10

SparrowsPoint, Md. B2 ..... 4.10

Steubenville, O. W10 ..... 4.10

Warren, O. R2 ..... 4.10

Weirton, W.Va. W6 ..... 4.40

Youngstown, R2, U5, Y1.4.10

**BARS, Hot-Rolled Alloy**

Bethlehem, Pa. B2 ..... 4.875

Buffalo R2 ..... 4.875

Canton, O. T7 ..... 5.02

Canton, O. R2 ..... 4.875

Clairton, Pa. U5 ..... 4.875

Detroit R7 ..... 5.025

Ecorse, Mich. G5 ..... 5.225

Massillon, O. R2 ..... 5.925

Futura, Calif. K1 ..... 5.925

Gary, Ind. U5 ..... 4.875

Hartford, Conn. R2 ..... 6.325

Harvey, Ill. B5 ..... 6.325

Lackawanna, N.Y. B2 ..... 6.325

Mansfield, Mass. B5 ..... 6.775

Massillon, O. R2. R8 ..... 6.325

Midland, Pa. C18 ..... 6.325

Monaca, Pa. S17 ..... 6.325

Newark, N.J. W18 ..... 6.65

Plymouth, Mich. P6 ..... 6.525

So. Chicago, Ill. R2. W14 ..... 6.325

SpringCity, Pa. Y3 ..... 6.475

Struthers, O. Y1 ..... 6.325

Waupaca, Ill. A7 ..... 6.325

Worcester, Mass. A7 ..... 6.825

Youngstown, F3, Y1 ..... 6.325

Donora, Pa. A7 ..... 6.325

Elyria, O. W8 ..... 6.00

Gary, Ind. D6 ..... 6.325

Hammond, Ind. L2, M13 ..... 6.325

Hartford, Conn. R2 ..... 6.775

Harvey, Ill. B5 ..... 6.325

Lackawanna, N.Y. B2 ..... 6.325

Massillon, O. R2. R8 ..... 6.325

Midland, Pa. C18 ..... 6.325

Monaca, Pa. S17 ..... 6.325

Newark, N.J. W18 ..... 6.65

Plymouth, Mich. P6 ..... 6.525

So. Chicago, Ill. R2. W14 ..... 6.325

SpringCity, Pa. Y3 ..... 6.475

Struthers, O. Y1 ..... 6.325

Waupaca, Ill. A7 ..... 6.325

Worcester, Mass. A7 ..... 6.825

Youngstown, F3, Y1 ..... 6.325

Donora, Pa. A7 ..... 6.325

Elyria, O. W8 ..... 6.00

Gary, Ind. D6 ..... 6.325

Hammond, Ind. L2, M13 ..... 6.325

Hartford, Conn. R2 ..... 6.775

Harvey, Ill. B5 ..... 6.325

Lackawanna, N.Y. B2 ..... 6.325

Massillon, O. R2. R8 ..... 6.325

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Monaca, Pa. S17 ..... 6.325

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Plymouth, Mich. P6 ..... 6.525

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SpringCity, Pa. Y3 ..... 6.475

Struthers, O. Y1 ..... 6.325

Waupaca, Ill. A7 ..... 6.325

Worcester, Mass. A7 ..... 6.825

Youngstown, F3, Y1 ..... 6.325

Chicago, Ill. W14	3.925
BarrowsPoint, Md. B2	.3.925
Ebensville, Pa. W10	.3.925
Bronce, Calif. C11	.4.625
Barren, O. R2	.3.925
Elton, W. Va. W6	.3.925
Youngstown U5, Y1	.3.925
<b>HEETS, H.R. (19 gage)</b>	
AlabamaCity, Ala. R2	.5.225
Dover, O. R1	.5.825
Ansfield, O. E6	.5.80
Iles, O. N12	.5.20
Torrance, Calif. C11	.5.875
<b>HEETS, H.R. (14 ga. heavier)</b>	
High-Strength Low-Alloy	
Jewell, J5, R2	.5.90
Onshochocken, Pa. A3	.6.15
Corse, Mich. G5	.6.375
Airfield, A2	.5.90
Fontana, Calif. K1	.7.00
Gary, Ind. U5	.5.90
Ind. Harbor, Ind. I-2	.5.90
Ind. Harbor, Ind. Y1	.6.40
Irvin, Pa. U5	.5.90
Lackawanna(35) B2	.5.90
Dunhill, Pa. U5	.5.90
Pittsburgh J5	.5.90
Charon, Pa. S3	.5.90
So. Chicago, Ill. U5	.5.90
BarrowsPoint(38) B2	.5.90
Warren, O. R2	.5.90
Weirton, W. Va. W6	.6.175
Youngstown U5	.5.90
Youngstown Y1	.8.40
<b>HEETS, Hot-Rolled Ingot Iron 18 Gage and Heavier</b>	
Ashtland, Ky. (8) A10	.4.175
Cleveland R2 (28)	.6.125
Sleveland R2	.4.525
Ind. Harbor, Ind. I-2	.4.175
Warren, O. R2	.4.525
<b>HEETS, Cold-Rolled Steel (Commercial Quality)</b>	
Butler, Pa. A10	.4.775
Cleveland J5, R2	.4.775
Ecorse, Mich. G5	.4.975
Fairfield, Ala. T2	.4.775
Fairless, Pa. U5	.4.875
Follansbee, W. Va. F4	.5.775
Irvin, Pa. U5	.5.775
Middletown, O. A10	.5.775
Youngstown Y1	.5.175
<b>HEETS, Cold-Rolled Steel</b>	
<b>High-Strength Low-Alloy</b>	
Cleveland J5, R2	.7.225
Ecorse, Mich. G5	.6.775
Fontana, Calif. K1	.8.275
Gary, Ind. U5	.7.225
IndianaHarbor, Ind. Y1	.7.725
Irvin, Pa. U5	.7.225
Lackawanna(37) B2	.7.225
Pittsburgh J5	.7.225
BarrowsPoint (38) B2	.7.225
Warren, O. R2	.7.225
Weirton, W. Va. W6	.7.475
Youngstown Y1	.7.725
<b>HEETS, Cold-Rolled Ingot Iron</b>	
Butler, Pa. A10	.5.275
Cleveland R2	.5.375
Middletown, O. A10	.5.275
Warren, O. R2	.5.375
<b>HEETS, Gal'd No. 10 Steel</b>	
AlabamaCity, Ala. R2	.5.275
Ashtland, Ky. (8) A10	.5.275
Canton, O. R2	.5.275
Dover, O. R1	.5.475
Fairfield, Ala. T2	.5.275
Gary, Ind. U5	.5.275
GraniteCity, Ill. G4	.5.475
Ind. Harbor, Ind. I-2	.5.325
Irvin, Pa. U5	.5.275
Kokomo, Ind. C16	.5.375
MartinsFerry, O. W10	.5.275
Niles, O. N12	.5.80
Pittsburgh Calif. C11	.6.025
BarrowsPoint, Md. B2	.5.275
Youngstown U5	.5.275
<b>HEETS, Galvanized No. 10, High-Strength Low-Alloy</b>	
Irvin, Pa. U5	.7.925
BarrowsPoint(29) B2	.8.075
<b>SHEETS, Galvanized Ingot Iron No. 10 flat</b>	
So. San Francisco(25) B3	.4.675
SparrowsPoint, Md. B2	.3.925
Torrance, Calif. C11	.4.675
Warren, O. R2	.3.925
Weirton, W. Va. W6	.4.025
Youngstown Y1, U5	.3.925
<b>SHEETS, Culvert Cu Cu Alloy Fe</b>	
Ashland, Ky. A1	.6.325
Canton, O. R2	.6.475
Fairfield(41) T2	.6.075
Gary, Ind. US	.6.075
Ind. Harbor, I-2	.6.075
Irvin, Pa. (41) T2	.6.075
Kokomo, Ind. C16	.6.525
MartinsFry, O. W10	.6.075
Torrance, Calif. C11	.6.825
<b>SHEETS, Culvert Pure Iron</b>	
Ashland, Ky. A10	.6.575
Fairfield, Ala. (41) T2	.6.325
MartinsFerry, O. W10	.6.325
<b>SHEETS, Galvannealed Steel</b>	
Bessemer, Ala. T2	.5.05
Conshohocken, Pa. A3	.6.20
Ecorse, Mich. G5	.6.50
Fairfield, Ala. T2	.5.65
Fontana, Calif. K1	.7.05
Gary, Ind. U5	.5.95
Ind. Harbor, Ind. I-2	.5.95
Irvin, Pa. U5	.5.95
Kokomo, Ind.(18) C16	.5.925
Niles, O. N12	.6.35
<b>SHEETS ZINCGRIP STEEL</b>	
Butler, Pa. A10	.5.525
Middletown, O. A10	.5.525
<b>SHEETS, ZINCGRIP Ingot Iron</b>	
Butler, Pa. A10	.5.775
Middletown, O. A10	.5.775
<b>SHEETS, Electro Galvanized</b>	
Butler, Pa. A10	.5.975
<b>SHEETS, ALUMINIZED</b>	
Butler, Pa. A10	.8.625
<b>SHEETS, Enameling Iron</b>	
Ashland, Ky. (8) A10	.5.175
Cleveland R2	.5.175
Gary, Ind. U5	.5.175
Fairless, Pa. U5	.5.175
Ind. Harbor, Ind. I-2	.5.175
Irvin, Pa. U5	.5.175
Lackawanna, N.Y. B2	.4.775
Middletown, O. A10	.4.775
Pittsburgh, Calif. C11	.5.725
Pittsburgh J5	.4.775
SparsrowsPoint, Md. B2	.4.775
Steubenville, O. W10	.4.775
Warren, O. R2	.4.775
Weirton, W. Va. W6	.4.775
Youngstown Y1	.4.775
<b>SHEETS, Long Terne Steel (Commercial Quality)</b>	
BeechBot'mn, W. Va. W10	.5.675
Gary, Ind. U5	.5.675
Mansfield, O. E6	.6.25
Middletown, O. A10	.5.675
Niles, O. N12	.6.00
Weirton, W. Va. W6	.5.675
<b>SHEETS, Long Terne, Ingot Iron</b>	
Middletown, O. A10	.6.075
<b>SHEETS, Well Casing</b>	
Fontana, Calif. K1	.6.20
<b>—STRIP—</b>	
<b>STRIP, Hot-Rolled Carbon</b>	
Ala. City, Ala. (28) R2	.3.925
Alton, Ill. L1	.4.20
Ashtland, Ky. (8) A10	.3.925
Atlanta A1	.4.475
Bessemer, Ala. T2	.3.925
Bridgeport, Conn. (10) S15	.4.425
Buffalo (27) R2	.3.925
Butler, Pa. A10	.3.925
Ind. Harbor, Ind. I-2	.3.925
Johnstown, Pa. (25) B2	.3.925
KansasCity Mo. (9) S5	.4.625
Lackawanna, N.Y. (32) B2	.3.925
Milwaukee, Wis. B3	.4.675
Milton, Pa. B4	.4.35
Minnequa, Colo. C10	.5.025
New Britain(10) S15	.4.425
N.Y. Tonawanda, N.Y. B11	.3.925
Pittsburgh, Calif. C11	.4.675
Riverville, Ill. A1	.3.925
Seattie(25) B3	.4.925
Seattie N14	.4.925
Sharon, Pa. S3	.4.225
So. Chicago, Ill. W14	.3.925
<b>STRIP, Hot-Rolled Ingot Iron</b>	
So. San Francisco(25) B3	.4.675
SparrowsPoint, Md. B2	.3.925
Torrance, Calif. C11	.4.675
Warren, O. R2	.3.925
<b>STRIP, Hot-Rolled Alloy</b>	
Bridgeport, Conn. (10) S15	.6.45
Carnegie, Pa. S18	.6.45
Fontana, Calif. K1	.7.80
Gary, Ind. U5	.6.40
Houston, Tex. S5	.6.90
Youngstown Y1	.7.10
<b>STRIP, Cold-Rolled Carbon</b>	
Anderson, Ind. (40) G6	.5.80
Bridgept, Conn. (10) S15	.6.15
Butler, Pa. A10	.5.45
Cleveland A7, J5	.5.45
Dearborn, Mich. D3	.6.05
Detroit D2	.5.95
Detroit M1	.5.45
Dover, O. (40) G6	.5.80
Ecorse, Mich. G5	.5.65
Follansbee, W. Va. F4	.5.45
Fontana, Calif. K1	.7.35
Franklin Park, Ill. (40) T6	.5.70
Lackawanna, N.Y. B2	.5.45
Los Angeles C1	.7.50
Mattapan, Mass. T6	.6.30
Middletown, O. A10	.5.45
New Britain(10) S15	.6.15
New Castle, Pa. E5	.5.95
New Haven, Conn. D2	.6.20
Pawtucket, R.I. R3	.6.30
Pawtucket, R.I. (21) N8	.6.65
Riverville, Ill. (40) A1	.5.70
Rome, N.Y. (29) R6	.6.45
Sharon, Pa. S3	.5.80
SparsrowsPoint, Md. B2	.5.45
Trenton, N.J. R5	.7.00
Wall'ford, Conn. W2(50)	.6.40
Warren, O. (40) T5	.5.95
Warren, O. R2	.5.45
Weirton, W. Va. W6	.5.45
Worcester, Mass. W19	.7.05
Youngstown C8	.5.95
Youngstown Y1	.5.45
<b>STRIP, Cold-Rolled Alloy Steel</b>	
Bridgept, Conn. (10) S15	.12.15
Carnegie, Pa. S18	.12.00
Cleveland A7	.12.00
Dover, O. G6	.12.00
Fontana, Calif. K1	.13.65
Harrison, N.J. C18	.12.00
New Britain Conn. (10) S15	.12.15
Pawtucket, R.I. (11) N8	.12.15
Pawtucket, R.I. (12) N8	.12.45
Sharon, Pa. S3	.12.00
Worcester, Mass. A7	.12.30
Youngstown C8	.12.00
<b>STRIP, Cold-Rolled High-Strength Low-Alloy</b>	
Cleveland J5	.7.80
Cleveland A7	.8.15
Dearborn, Mich. D3	.7.90
Ind. Harbor, Ind. I-2	.5.70
Lackawanna, N.Y. B2	.5.45
Dover, O. G6	.8.00
Ecorse, Mich. G5	.8.50
Lackawanna, N.Y. B2	.8.15
Sharon, Pa. S3	.7.65
Warren, O. R2	.8.30
Weirton, W. Va. W6	.8.30
Youngstown Y1	.8.30
<b>STRIP, Cold-Rolled Ingot Iron</b>	
Warren, O. R2	.6.05
<b>STRIP, Electro Galvanized</b>	
Dover, O. G6	.5.70
Warren, O. T5	.5.70
Weirton, W. Va. W6	.5.45
Youngstown C8	.5.95
<b>TIGHT COOPERAGE HOOP</b>	
Atlanta A11	.4.65
Riverville, Ill. A1	.4.50
Sharon, Pa. S3	.4.55
Sharon, Pa. C8	.4.55
Youngstown U5	.4.35
<b>P13 Precision Drawn Steel</b>	
P14 Pitts. Screw & Bolt Co.	
P15 Pittsburgh Metallurgical	
P16 Page Steel & Wire Div., Amer. Chain & Cable	
P17 Plymouth Steel Co.	
R1 Reeves Steel & Mfg. Co.	
R2 Republic Steel Corp.	
R3 Rhode Island Steel Corp.	
R5 Roehling's Sons, John A.	
R6 Rome Strip Steel Co.	
R7 Rotary Electric Steel Co.	
R8 RelianceDiv., EatontMfg.	
R9 Romm Mfg. Co.	
S1 Seneca Wire & Mfg. Co.	
S3 Sharon Steel Corp.	
S4 Sharon Tube Co.	
S5 Sheffield Steel Corp.	
S6 Shenango Furnace Co.	
S7 Simmons Co.	
S8 Simonds Saw & Steel Co.	
S9 Sloss-Sheffield S. & I. Div.	
S13 Standard Forgings Corp.	
S14 Standard Tube Co.	
S15 Stanley Works	
S16 Struthers Iron & Steel	
S17 Superior Drawn Steel Co.	
S18 Superior Steel Corp.	
S19 Sweet's Steel Co.	
S20 Southern States Steel	
S25 Stainless Welded Products	
S26 Specialty Wire Co. Inc.	
T2 Tenn. Coal & Iron Div.	
T3 Tenn. Prod. & Chem.	
T4 Texas Steel Co.	
T5 Thomas Strip Division, Pittsburgh Steel Co.	
T6 Thompson Wire Co.	
T7 Timken Roller Bearing	
T9 Tonawanda Iron Div., Am. Rad. & Stan. San. Tube Methods Inc.	
U4 Universal-Cyclops Steel	
U5 United States Steel Corp.	
V2 Vanadium-Alloys Steel	
V3 Vulcan Crucible Steel Co.	
W1 Wallace Barnes Co.	
W2 Wallingford Steel Co.	
W3 Washburn Wire Co.	
W4 Washington Steel Corp.	
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron	
W13 Wilson Steel & Wire Co.	
W14 Wisconsin Steel Div., International Harvester	
W15 Woodward Iron Co.	
W18 Wyckoff Steel Co.	
W19 Worcester Pressed Steel Co.	
Y1 Youngstown Sheet&Tube	

STRIP, Cold-Finished, Spring Steel (Annealed)	0.26-	0.41-	0.61-	0.81-	1.06-
	0.40C	0.60C	0.80C	1.05C	1.35C
Berea, O. C7	.....	8.00	8.60	10.55	12.85
Bridgeport, Conn. (10)	S15	6.15	8.00	8.60	10.55
Bristol, Conn. W1	.....	.....	8.90	10.85	.....
Carnegie, Pa. S18	.....	8.00	8.60	10.55	12.85
Cleveland, A7	5.45	7.65	8.60	10.55	12.85
Dearborn, Mich. D3	6.05	8.25	8.85	.....	.....
Detroit, D2	6.45	7.85	8.45	10.55	.....
Dover, O. G6	6.05	8.00	8.60	10.55	12.85
Franklin Park, Ill. T6	5.80	7.80	8.75	10.70	.....
Harrison, N.J. C18	.....	.....	8.90	10.85	13.15
Mattapan, Mass. T6	6.30	7.95	8.90	10.85	13.15
New Briton, Conn. (10)	S15	6.15	8.00	8.60	10.55
New Castle, Pa. B	5.80	8.00	8.60	.....	.....
New Castle, Pa. E5	5.95	8.00	8.60	10.55	12.85
New Haven, Conn. D2	6.70	7.95	8.55	10.50	.....
New York W3	.....	8.30	8.90	10.85	13.15
Pawtucket, R.I. N8:	.....	.....	.....	.....	.....
Cleve.or.Pitts.Base	.....	8.00	8.60	10.55	12.85
Worcester, Mass. Base	6.65	7.95	8.90	10.85	13.15
Sharon, Pa. S3	.....	8.00	8.60	10.55	12.85
Trenton, N.J. R5	.....	8.30	8.90	10.85	13.15
Wallingford, Conn. W2	6.85	7.95	8.90	10.85	13.15
Warren, O. T5	6.20	8.00	8.60	10.55	12.85
Weirton, W.Va. W	5.80	8.00	8.60	10.55	12.85
Worcester, Mass. A7	5.75	7.95	8.90	10.85	13.15
Worcester, Mass. T6	6.30	7.95	8.90	10.85	13.15
Youngstown, C8	.....	8.00	8.60	10.55	12.85
<b>STEEL (Tempered)</b>					
Bristol, Conn. W1	.....	12.50	15.00	.....	.....
Franklin Park, Ill. T6	12.50	15.00	18.00	.....	.....
Trenton, N.J. R5	.....	12.50	15.00	18.00	.....
Harrison, N.J. C18	.....	12.50	15.00	18.00	.....
New York W3	.....	12.50	15.00	18.00	.....
Worcester, Mass. T6	.....	12.50	15.00	18.00	.....
Youngstown, C8	.....	10.30	12.50	18.35	.....

**SILICON STEEL**

Sheets, Silicon, H.R. or C.R. (22 Ga.)	Arms- Coils (Cut lengths $\frac{1}{2}$ lower)	Field	Elec- ture	Dyna- Motor mo
BeechBottom W10 (cut lengths)	.....	8.35	9.60	10.40
Brackenridge, Pa. A4	.....	8.85	10.10	10.90
GraniteCity, Ill. G4 (cut lengths)	.....	8.55	9.80	.....
IndianaHarbor, Ind. I-2	8.05	8.35	8.85 (34)	.....
Mansfield, O. E6 (cut lengths)	7.55	7.85	8.35	9.60 10.40
Newport, Ky. N9 (cut lengths)	7.55	7.85	8.35	9.60 13.40
Niles, O. N12 (cut lengths)	7.55	7.85	8.35	.....
Vandergrift, Pa. U5	.....	8.35	8.85	10.10 10.90
Warren, O. R2	8.05	8.35	8.85	10.10 10.90
Zanesville, O. A10	.....	8.35	8.85	10.10 10.90

Sheets, Silicon (22 Ga. Base)	Coils (Cut Lengths $\frac{1}{2}$ lower)	Transformer	Grade
BeechBottom W10 (cut lengths)	72	65	58
Brackenridge, Pa. A4	10.95	11.50	12.20
Newport, Ky. N9 (cut lengths)	11.45	.....	.....
Vandergrift, Pa. U5	10.95	11.45	12.00
Warren, O. R2	11.45	12.00	12.70
Zanesville, O. A10	11.45	12.00	12.70

H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22 Ga.)	T-100	T-90	T-80	T-73
Butler, Pa. A10 (C.R.)	.....	16.05	16.55	.....
Vandergrift, Pa. U5	14.00	14.85	15.85	16.35

**TIN MILL PRODUCTS**

TIN PLATE, Electrolytic (Base Box)	0.25 lb	0.50 lb	0.75 lb
Aliquippa, Pa. J5	\$7.40	\$7.65	\$8.05
Fairfield, Ala. T2	7.50	7.75	8.15
Fairless, Pa. U5	7.50	7.75	8.15
Gary, Ind. U5	7.40	7.65	8.05
GraniteCity, Ill. G4	7.60	7.85	8.25
IndianaHarbor, Ind. I-2, Y1	7.40	7.65	8.05
Irvin, Pa. U5	7.40	7.65	8.05
Niles, O. R2	7.40	.....	.....
Pittsburgh, Calif. C11	8.15	8.40	8.80
SparrowsPoint, Md. B2	7.50	7.75	8.15
Weirton, W.Va. W6	7.40	7.65	8.05
Yourkville, O. W10	7.40	7.65	8.05

TIN PLATE, American 1.25 1.50 (Box Base)	lb	lb	lb
Aliquippa, Pa. J5	\$8.70	\$8.95	.....
Fairfield, Ala. T2	8.80	9.05	.....
Fairless, Pa. U5	8.80	9.05	.....
Gary, Ind. U5	8.70	8.95	.....
Ind. Har. I-2, Y1	8.70	8.95	.....
Irvin, Pa. U5	8.70	8.95	.....
Pitts., Cal. C11	9.45	9.70	.....
Sp. Pt., Md. B2	8.80	9.05	.....
Warren, O. R2	8.70	8.95	.....
Weirton, W.Va. W6	8.70	8.95	.....
Yorkville, O. W10	8.70	8.95	.....

HOLLOWARE ENAMELING (Box Base)	Black Plate (29 gage)	Black Plate (26 gage)
Aliquippa, Pa. J5	\$8.70	\$8.95
Follansbee, W.Va. F4	.....	8.10
Gary, Ind. U5	.....	8.10
GraniteCity, Ill. G4	.....	8.30
Ind. Harbor, Ind. Y1	.....	8.10
Irvin, Pa. U5	.....	8.10
Yorkville, O. W10	.....	6.55

MANUFACTURING TERNES (Special Coated)	Fairfield, Ala. T2	.....
Fairfield, Ala. T2	.....	\$7.85
Gary, Ind. U5	.....	7.75
Irvin, Pa. U5	.....	7.75
Yorkville, O. W10	.....	7.75

MANUFACTURING TERNES, Lt. Coated	6 lb	6 lb
Fairfield, Ala. T2	.....	6.50
Gary, Ind. U5	.....	6.50
Irvin, Pa. U5	.....	6.50
Yorkville, O. W10	.....	6.50

MANUFACTURING TERNES, LT. Coated	8 lb Coated	8 lb Coated
Fairfield, Ala. T2	.....	6.50
Gary, Ind. U5	.....	6.50
Irvin, Pa. U5	.....	6.50
Yorkville, O. W10	.....	6.50

ROOFING SHORT TERNES (8 lb Coated)	Gary, Ind. U5	9.75
Gary, Ind. U5	.....	9.75

**-WIRE-****WIRE, Manufacturers Bright,****Low Carbon****Alabamacity, Ala. R2****Alquippa, Pa. J5****Atlanta, A11****Buffalo, W12****Chicago, W13****Cleveland, A7, C20****Donora, Pa. A7****Duluth, Minn. A7****Fairfield, Ala. T2****Fostoria, O. S1 (43)****KansasCity, Mo. S5****LakeErie, A1****Minnequa, Colo. C10****Montgomery, Pa. P16****Monessen, Pa. P7****Montgomery, Pa. P18****Montgomery, Pa. P19****Montgomery, Pa. P20****Montgomery, Pa. P21****Montgomery, Pa. P22****Montgomery, Pa. P23****Montgomery, Pa. P24****Montgomery, Pa. P25****Montgomery, Pa. P26****Montgomery, Pa. P27****Montgomery, Pa. P28****Montgomery, Pa. P29****Montgomery, Pa. P30****Montgomery, Pa. P31****Montgomery, Pa. P32****Montgomery, Pa. P33****Montgomery, Pa. P34****Montgomery, Pa. P35****Montgomery, Pa. P36****Montgomery, Pa. P37****Montgomery, Pa. P38****Montgomery, Pa. P39****Montgomery, Pa. P40****Montgomery, Pa. P41****Montgomery, Pa. P42****Montgomery, Pa. P43****Montgomery, Pa. P44****Montgomery, Pa. P45****Montgomery, Pa. P46****Montgomery, Pa. P47****Montgomery, Pa. P48****Montgomery, Pa. P49****Montgomery, Pa. P50****Montgomery, Pa. P51****Montgomery, Pa. P52****Montgomery, Pa. P53****Montgomery, Pa. P54****Montgomery, Pa. P55****Montgomery, Pa. P56****Montgomery, Pa. P57****Montgomery, Pa. P58****Montgomery, Pa. P59****Montgomery, Pa. P60****Montgomery, Pa. P61****Montgomery, Pa. P62****Montgomery, Pa. P63****Montgomery, Pa. P64****Montgomery, Pa. P65****Montgomery, Pa. P66****Montgomery, Pa. P67****Montgomery, Pa. P68****Montgomery, Pa. P69****Montgomery, Pa. P70****Montgomery, Pa. P71****Montgomery, Pa. P72****Montgomery, Pa. P73****Montgomery, Pa. P74****Montgomery, Pa. P75****Montgomery, Pa. P76****Montgomery, Pa. P77****Montgomery, Pa. P78****Montgomery, Pa. P79****Montgomery, Pa. P80****Montgomery, Pa. P81****Montgomery, Pa. P82****Montgomery, Pa. P83****Montgomery, Pa. P84****Montgomery, Pa. P85****Montgomery, Pa. P86****Montgomery, Pa. P87****Montgomery, Pa. P88****Montgomery, Pa. P89****Montgomery, Pa. P90****Montgomery, Pa. P91****Montgomery, Pa. P92****Montgomery, Pa. P93****Montgomery, Pa. P94****Montgomery, Pa. P9**







## Re-check YOUR Cost Relief Zone!

You are Responsible for Tooling and Production, Accept  
his Challenge and Get Results!

If other men with responsibilities like yours can find a new source for cost economies in their tools and dies, why can't you? By taking a fresh look at this vital cost zone, one plant now makes far fewer dies each year to do the same jobs. Another has been able to lengthen die life between grinds so that costly machine downtime is no longer a problem. Still another reports that expensive die finishing and adjusting are being held to a minimum.

Another good example is the job shown above. These tools notch different shapes in materials ranging from  $\frac{1}{8}$ " thick c.r. steel to  $\frac{1}{4}$ " diamond plate. A re-check of the dies showed that a steel with more toughness was needed, and Carpenter R.D.S. (Oil-Tough) was put to work. Now, where the "old" tools chipped badly and required frequent regrinding of as much as .031" off the surface, the R.D.S. tools hold up day

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- Greater output between grinds
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	SHEETS			STRIP			BARS			Standard		PLATES	
	Hot Rolled	Cold Rolled	Gal. 10 Ga. <sup>t</sup>	H.R.*	C.R.*	H.R. Rds.	C.F. Rds. <sup>#</sup>	4140 <sup>††</sup>	H.R. Alloy	Structural Shapes	Carbon	Floor	
Baltimore ....	6.20	7.64	7.81	7.00	...	6.86	7.92	12.04	6.98	6.85	7.98	7.98	
Boston .....	6.89	7.83	9.23	7.13	...	6.87	8.10	12.28	7.06	7.13	8.26	8.26	
Buffalo .....	6.18	7.15	9.01	6.79	...	6.35	7.45	12.17	6.59	6.68	7.88	7.88	
Birmingham ...	6.10	7.00	8.00 <sup>d</sup>	6.30	...	6.15	8.90	...	6.35	6.35	8.65	8.65	
Charlotte, N. C.	6.95	7.80	8.69	6.90	...	7.10	8.37	...	7.10	7.10	8.37	8.37	
Chicago .....	6.18	7.12	8.06	6.42	...	6.28	7.30	11.75	6.46	6.33	7.48	7.48	
Cincinnati ....	6.51	7.19	8.47	6.72	...	6.58	7.66	12.17	6.93	6.85	7.88	7.88	
Cleveland ....	6.18	7.12	7.90	6.58	...	6.34	7.40	11.89	6.79	6.50	7.79	7.79	
Detroit .....	6.45	7.32	8.34	6.71	...	6.57	7.60	11.92	6.93	6.85	7.80	7.80	
Houston .....	6.89	...	8.62	7.18	...	7.13	...	...	6.94	6.86	8.24	8.24	
Jersey City, N.J..	6.54	7.45	8.72	6.82	...	6.75	8.43 <sup>e</sup>	11.84	6.50	6.67	8.01	8.01	
Los Angeles ...	7.25	9.00	9.60	7.55	11.20	7.15	9.75	13.05	7.35	7.20	9.25	9.25	
Milwaukee ....	6.35	7.29	8.22	6.59	...	6.45	7.57	11.92	6.63	6.50	7.63	7.63	
Moline, Ill. ....	6.31	7.17	8.25	6.45	...	6.33	7.37	...	6.42	6.38	...	...	
New York ....	6.54	7.45	8.72	6.82	...	6.75	8.43 <sup>e</sup>	11.84	6.50	6.67	8.01	8.01	
Newark, N. J..	6.78	7.75	9.02	7.16	...	7.06	8.43 <sup>e</sup>	...	6.90	6.99	8.30	8.30	
Norfolk, Va. ..	6.90	...	...	7.20	...	7.20	8.50	...	7.20	7.15	7.85	7.85	
Philadelphia ...	6.53	7.55	8.35	7.02	8.80	6.87	8.19 <sup>e</sup>	11.89	6.67	6.63	7.65	7.65	
Pittsburgh ....	6.18	7.12	8.60	6.55	...	6.28	7.40	11.75	6.46	6.33	7.46**	7.46**	
Portland, Oreg..	7.80	9.05	9.30	7.50	...	7.25	9.40	...	7.25	7.05	9.25	9.25	
Richmond, Va. .	6.50	7.45	8.00	7.10	...	7.05	7.95	...	7.10	6.85	8.10	8.10	
St. Louis .....	6.48	7.42	8.35	6.72	...	6.58	7.70	12.05	6.86	6.73	7.86	7.86	
St. Paul .....	6.47	7.48	8.56	6.77	...	6.64	7.78	...	6.73	6.69	7.92	7.92	
San Francisco..	7.35	8.70	10.15	7.60	...	7.15	9.75	13.05	7.25	7.20	9.25	9.25	
Seattle (city) ..	8.15	8.70	10.10	8.02	...	7.58	10.13	13.50	7.50	7.59	9.40	9.40	
Spokane (city). .	8.45	9.25	9.80	8.40	...	7.95	10.55	13.20	7.45	7.45	9.80	9.80	
Washington ...	6.71	8.15	8.35	7.51	...	7.37	8.43	...	7.49	7.36	8.49	8.49	

\*Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gag extra excluded); ‡ includes 35-cent special bar quality extra; § as rolled; §§ as annealed; \*\* 1/2" and heavier, 8.09c for No. 12 and lighter. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; Cold-finished bars, 2000 lb and over; 500 to 9999 lb; 6—1000 to 1999 lb.

## Warehouse Steel Demand Dips Slightly

Seasonal factors cause decline of around 10 per cent in July tonnage and will restrict trading for another month. Stocks are improving but continue unbalanced

**Philadelphia** — July business will be off seasonally, distributors declare, but not sharply. Pricewise, the decline may be slight because of advances over recent weeks, reflecting adjustments at the mills.

On a tonnage basis one large distributor estimates his business may be off possibly 10 per cent.

The price on cold-finished bars has been revised upward by one distributor from 7.94 cents to 8.19 cents, with quotations based on 1000 pounds and over instead of 2000 pounds and over.

**Cleveland**—With operations at some manufacturing plants picking up following completion of summer vacations, warehouses note a quickening in demand. Expectations are order volume over the remainder of this month and during August will be restricted by seasonal factors.

Demand in general is described as substantial though down from that in June. Stocks are improving over-all, but continue unbalanced. Sheets are in noticeably tight supply.

**New York**—Adjustments in cold-drawn bar mill extras have resulted in an advance in warehouse prices of 25 cents per 100 pounds with quota-

tions based on lots of 1000 pounds and over instead of 2000 pounds. Otherwise, prices are steady.

Business continues to reflect seasonal influences although vacations and warm weather are not making quite the inroads that many distributors expected early in the summer. In some lines consumer pressure remains strong, such as in the major grades of sheets, structurals and large rounds.

**Boston** — Balanced inventories in most steel products are expected by end of fourth quarter. Possible exceptions are carbon sheets and structurals with the outlook more favorable on sheets than for structurals, especially should buying by the automotive industry slacken.

Distributors are getting into inventory balance product by product, with alloys generally leading in this respect. Volume is off for July, but not as much as expected.

**Birmingham** — Even though pressure for warehouse steel is reported to have eased nationally, local warehousemen report steady pressure. This is due in part to the fact local distributors are still short on most items; completely out of some.

**Seattle** — Galvanized sheets are plentiful but hot-rolled and cold rolled sheets are in extremely tight supply. The same is true of plates. No easing in these items is expected this year. Bars and structurals mostly coming from western sources are in fair supply. Inventories are about 60 per cent of normal. While they have improved this year, stocks continue unbalanced and not much headway is expected during fourth quarter. Good business in June reduced inventories of some items.

**San Francisco** — Steel warehouse business continues good, although is down somewhat from the peak a few months back. Summer vacations and a variety of strikes have combined to reduce the over-all volume in recent weeks.

## Steel Rates To Far East Cut

**Seattle**—Effective July 1, the Pacific Westbound Conference reduced steamship rates on steel commodities up to \$1.50 a ton. The new base level for iron and steel, trans-Pacific, is now \$22.75 contract.

Extended to Aug. 31 is a specific rate of \$18, long ton, on steel ingots to Manila and \$20 a long ton, or 4 cubic feet, on used steel boiler tubes for redrawing, destination Japan. Cast iron pipe is down \$1.30 a ton to \$32.45 a long ton.

The former junk item has been deleted and scrap is under new classifications for various grades of steel and cast iron.

# ut Some Quantity Extras on Cold Bars

Certain cold-finished producers effect revisions in two brackets. Other makers expected to follow. Demand prospects for remainder of year considered promising

Bar Prices, Page 124

**Philadelphia**—Some producers of cold-drawn bars have reduced certain quantity extras, and others indicate they may follow. Extras revised affect two lots—500 to 999 pounds, inclusive, with the quantity extra dropped from \$3.95 to \$3 per 100 pounds, and 1000 to 1999 pounds inclusive, with the extra reduced from \$2.95 to \$2 per 100 pounds.

In addition, at least one eastern mill has advanced extras on wide flats over 6 inches about 45 cents per 100 pounds on the average. Also new extra has been put into effect on near squares.

Most cold bar drawers are optimistic over prospects for the remainder of the year. Some are more optimistic than they were two or three weeks ago. Fourth quarter schedules are filling up at a promising rate, with indications they will be completely filled long before the end of the current quarter.

Hot bar producers also are encouraged over the outlook. There may not be quite the consuming pressure as the year becomes further advanced, but the producers see little likelihood of much drop in their operating rate, even in the final weeks of the year, and in the larger sizes, 2½ to 3 inches and over, no likelihood whatsoever, especially in view of continued strong prospects for shell work.

Precision Drawn Steel Co., Camden, N. J., has started work on construction of a 60 by 250-ft. plant addition, the fourth within the past five years and which will increase overall capacity by about 25 per cent. Installed will be bar turning, cutting and straightening and polishing equipment, along with additional materials handling equipment. New turning equipment will increase the plant's facilities of that type 100 per cent. Project is scheduled for completion by end of this year.

**Boston**—Fourth quarter schedules for cold-finished carbon bars, 3-inch and under, are filling slowly. Some producers are now seeking orders in that range. Consumers in more cases are not placing alloy volume to the extent of mill offerings.

Deliveries on more grades of carbon and alloy stock are improving

in a broader range of sizes. Hot-rolled bars are sold well into last quarter and only a slackening in automotive demand or turnbacks by cold-finishingers would likely create openings. Latter are building some inventory. Not much hot-rolled bar tonnage, rounds to 2-inch and flats to 5 inch, can be expected off the Morrisville, Pa. mill before October-November.

**Cleveland**—Several producers of cold-finished carbon steel bars, including Republic Steel Corp., have just effected some changes in their extra cards. Republic's changes became effective July 20, and include a reduction of 95 cents in quantity extras in two brackets, 500 to 999 pounds, and 1000 to 1999 pounds.

Other changes in the extra card include posting of a 35 cent extra on near squares, minor changes in the chemical requirement extras, and the posting of extras on turned, ground and polished bars 7 13/16 to 8-inch inclusive.

Republic also adjusted downward its published base price on cold-finished carbon bars at Hartford, Conn., from \$5.85 per 100 pounds to \$5.75. Similar reduction was announced by Bliss & Laughlin at Mansfield, Mass.

Demand for bars continues strong and there is nothing in sight to indicate any particular letdown in demand over remainder of the year. Automotive requirements continue pressing, and other consuming lines

are taking tonnage in about the same volume as recently. Military needs for large sizes are not expected to slacken materially.

Fourth quarter bookings are reported substantial and with an indicated carryover from third to fourth quarter the mills anticipate little change in tight supply conditions over remainder of the year.

**Chicago**—There is no evidence now of slackening demand for steel bars in any category. The military shell program and high automobile manufacturing projections combine to create this outlook.

Bar production will be at a maximum for third quarter and similar prospect is developing for the last three months of the year. Customer quotas for the latter period have been announced at about the same tonnages as for third quarter, yet the majority of consumers are seeking more. A cold-finisher which opened its books for October reports a sellout.

**New York**—Hot carbon bar sellers note an element of caution among consumers in specifying for fourth quarter. One large seller points out it is no longer a case of a mill opening books for a succeeding quarter only to have space snapped up as quickly as it is offered.

There is still plenty of business in sight for the closing months of the year and most producers doubt there will be any true balance between supply and demand before the final quarter is over. But it does seem as if most consumers are becoming a little more inventory-conscious and are disposed to specify a little less actively than they have in the past.

Most mills are confident there will be more demand for the large rounds

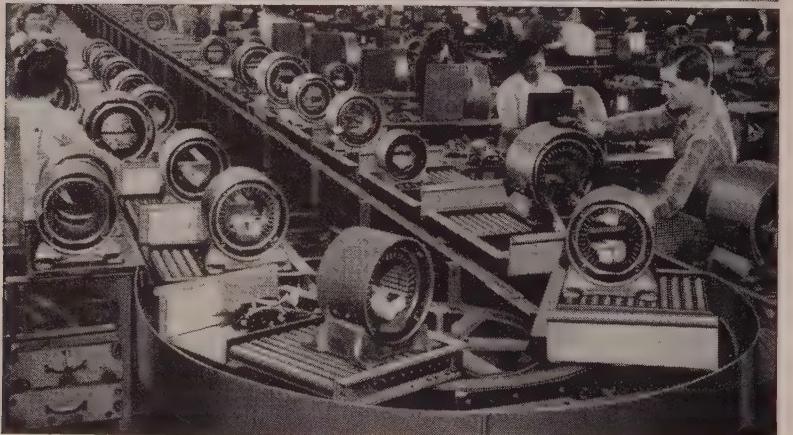


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in the final quarter than they will be able to handle. They still anticipate heavy government specifications for shell work.

**Pittsburgh**—If government requirements of steel for shells remain as high in fourth quarter as in third, supply of large size bars should continue tight the balance of this year.

Smaller size bars remain in tight supply, but producers predict they will not be as critical during fourth quarter. Orders from fastener and implement producers are slightly retarded.

A producer of cold-finished bars states vacation schedules are cutting heavily into his ability to satisfy a steady rate of orders.

### Sheets, Strip . . .

Sheet and Strip Prices, Page 124 & 125

**Boston**—Buying of narrow cold-rolled strip for fourth quarter shipment is heavier than is buying of carbon sheets for the period. Many orders were placed previous to vacation plant shutdowns, while numerous users of sheets delayed placement until they resume operations.

More hot-rolled sheet tonnage will be available next quarter due to larger capacity, although some producers of flat-rolled are limiting distribution in this area to specialties. Consumers of flat-rolled are more cost and inventory conscious.

Pressure for tonnage has eased, but demand for stainless, both sheets and strip, is heavier with the mills closer to normal deliveries.

**New York**—Consumers of hot-rolled and cold-rolled sheets are still turning to importers and warehouses for tonnage required in rounding out their needs. The vacation season has reduced demand pressure slightly but most consumers could use more tonnage than they are receiving from the mills.

Virtually all producers are behind on deliveries of hot and cold sheets and they also appear to be oversold on enameling stock and electrical sheets. There is considerable speculation in the market as to whether supply will come into balance with demand by end of this year. Many are looking for the automotive industry to supply the answer.

**Pittsburgh**—Consumers are still taking all the sheets they can get with no letup in sight. Household appliance and automotive demand continues strong.

Order books are filling quickly for cold-rolled strip in fourth quarter. Predictions are for a good final quarter over-all. While scattered cutbacks are reported, they do not endanger

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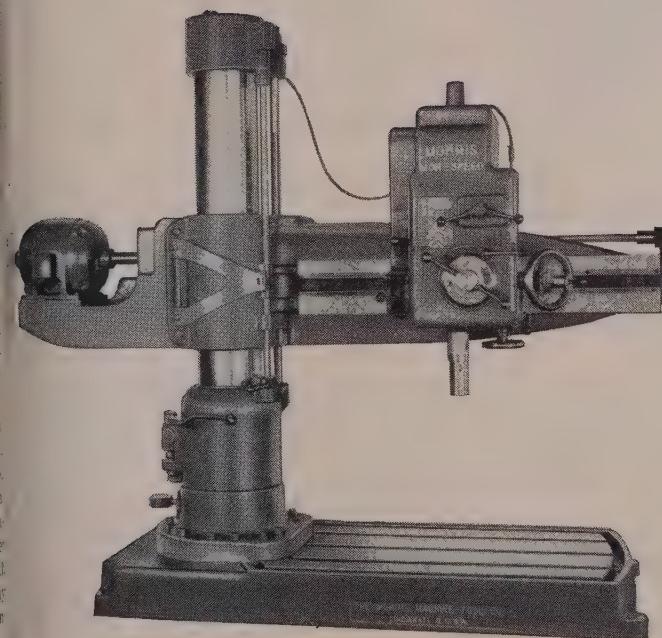
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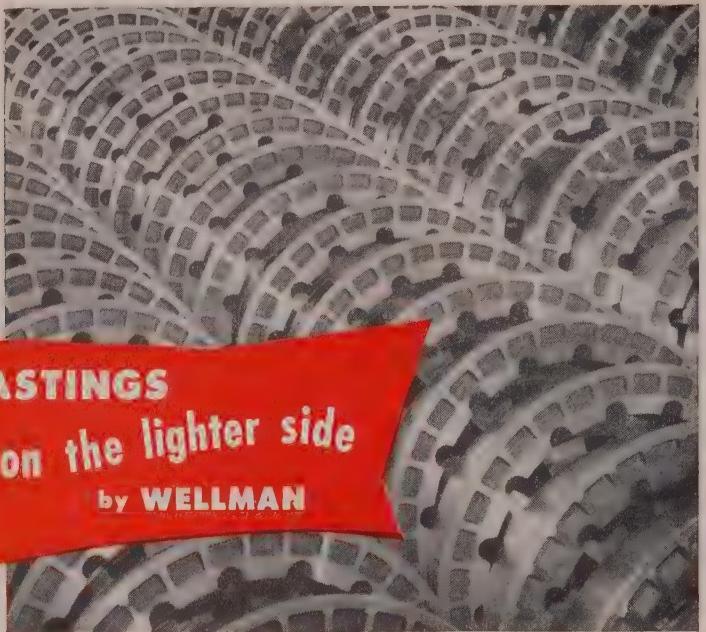
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the fourth quarter outlook. Conversion orders are still being made.

**Philadelphia** — Consumers of hot and cold-rolled sheets are not showing the interest in conversion steel that they did earlier in the year, but they are still after all of the fourth quarter tonnage the mills will supply them and are still placing some orders with importers at premium prices.

**Cleveland** — Mills are booking orders for fourth quarter shipment in such volume as to give support to predictions of continued high-level operations through the remainder of the year.

No letup in automotive requirements is reported by the mills though interest in conversion and premium-priced tonnage is off from that of previous months.

**Chicago** — For fourth quarter, steel consumers have received sheet quotas from the mills aggregating about the same tonnage as was allowed them for third quarter. Majority of users, however, are asking for more.

Automotive interests continue to investigate conversion possibilities in the October-December period but so far make no commitments.

**Los Angeles** — Columbia-Geneva Steel Division, U. S. Steel Corp., fourth quarter sheet order books remain closed to adjust for carryover from third quarter, expected to be substantial.

### Wire . . .

Wire Prices, Page 126

**New York** — Recent report in these columns to the effect Indiana Steel & Wire Co., Muncie, Ind., had booked a contract for approximately 125 tons of galvanized steel camouflage wire netting, Corps of Engineers, New York, was partially in error. The original invitation covered a total of 54,481 rolls, not 544,481 as reported, and Indiana Steel & Wire was awarded a contract covering only approximately one-fourth of the total.

**Boston** — Wire orders for fourth quarter are coming in slowly. Even September schedules are filling slowly. Resuming operations after vacations, many consumers are reviewing backlog, costs and inventories before ordering for the last three months of the year.

The largest producer is again in production at Worcester, Mass., but finishing operations will not be in full swing before the first of next month.

**Los Angeles** — Wire buying is compressed. Supplies are good in all categories. Demand for nails, bolts and nuts lags.



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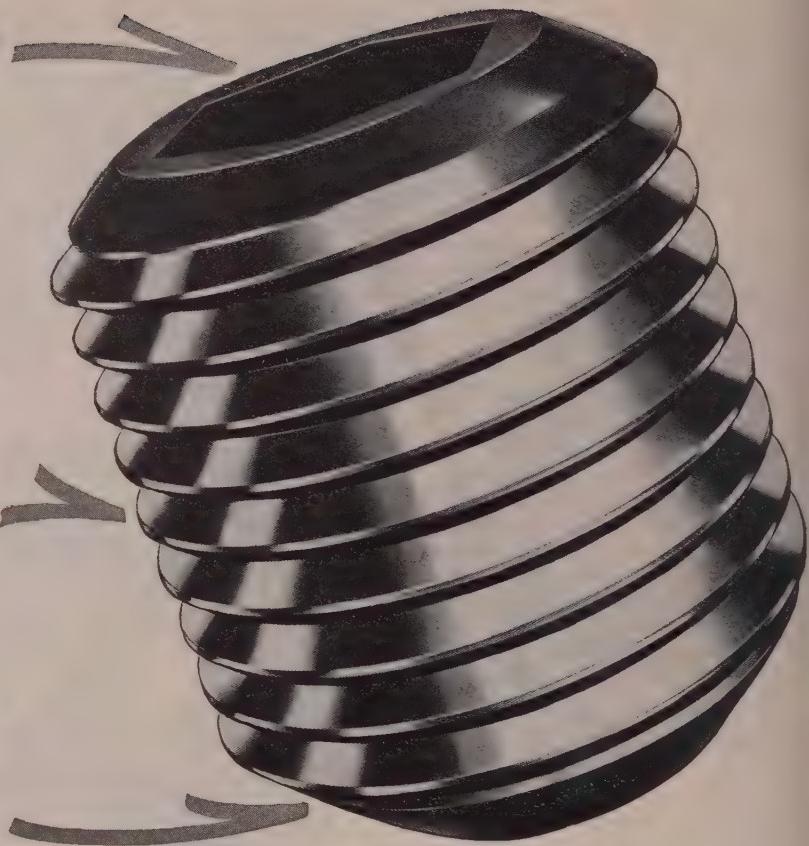
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ates . . .

Plate Prices, Page 124

Philadelphia—Platemakers anticipate active operations throughout the remainder of this year. Plate production may not be quite as heavy in the fourth quarter as it was in the preceding period this year, but pronounced lag is expected.

Almost without exception, producers expect to go into fourth quarter with a carryover of two to four weeks, which means that demand could decline appreciably and still leave the mills with plenty of work in their books. And there are no definite indications at the moment that demand will decline appreciably, except perhaps during the year-end holidays.

Boston—Plate and head deliveries are closer to balance. Small spun heads range from 8 to 10 weeks and pressed circles 6 to 8. October schedules are filled on plates and even more extended where producers are looking for the entire quarter.

While straight chromium clad stock deliveries approximate 10 weeks, specifications taking nickel are extended out to 4 months on some combinations.

Lighter gages are less available with a notably strong demand for 8-inch plates. Floor plates are available for prompt shipment.

New York—Despite spotty demands from district shipyards, plate specifications here are active. Tank and boiler manufacturers are still pressing for tonnage, claiming they could operate on a more active basis if they could get more plates.

Oil and chemical industries are specifying freely, with a moderate demand from railroad carbuilders.

Pittsburgh—At least one major producer doubts a lag will develop in purchases of plate and structural shapes. Consumers still need all the steel they can get. They continue to ask for additional tonnage.

Birmingham—Plates remain on the scarce list. Additional supplies are not in prospect for remainder of the year. Backlog of car orders for the district, however, is melting, and the supply picture might change.

Seattle—Scarcity of steel hampers plate fabricators. Small shops are particularly handicapped, being unable to bid on many jobs and in some cases forced to curtail operations.

Hydraulic Supply Mfg. Co., Seattle, is fabricating a stainless steel evaporator for the Ketchikan Pulp Co., which, while involving only about 50 tons of material, calls for special skill and a number of items of interesting design.



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## Reinforcing Bars . . .

Reinforcing Bar Prices, Page 124

**Boston**—Substantial volume of concrete reinforcing bars placed earlier in the year are being or will be delivered at prices up to \$15 per ton higher than original estimates. Increases go into effect at time of shipment and considerable tonnage of unshipped bars is involved. New buying is active, notably in small lots with heavier requirements for bridges developing.

**Seattle**—Rolling mill operations are back to normal with resumption of Northwest Steel Rolling Mills Inc. after a vacation shutdown. Mills have backlog extending well into fourth quarter. Not many large jobs are pending, but there is a good volume of contracts for less than 100 tons each. Buyers generally have accepted the new higher base prices. The price of 5.80 cents for reinforcing bars fabricated to consumers has not been changed and there is no indication a rise is in prospect.

## Structural Shapes . . .

Structural Shapes Prices, Page 124

**Philadelphia**—Except for the 6250-ton Pennsylvania Railroad repair shop at Hollidaysburg, Pa., on which bids were closed last week, little is outstanding in the way of industrial and commercial fabricated work in this district.

Bulk of demand is centered on bridges, a situation that leaves many of the smaller shops hard pressed for tonnage as they are not equipped to handle that type of work.

Another problem for the small shops often develops when they try to get steel for jobs larger than they normally take and which means going to the mills for more tonnage than their quotas usually call for.

**Boston**—More bridgework is being estimated with projects approximating 7000 tons about to come out. Strikes have set back district shop schedules. Larger fabricators are about keeping pace with incoming volume, but are extended into January on girder work. A Somerville, Mass., fabricator booked 1000 tons for a hangar at Logan Airport, Boston.

**New York**—Considerable bridge work, particularly for the New York state thruway, continues to dominate the structural market. Commercial work is spotty, although featured by the award of a 2400-ton office building. Industrial building is light. Small fabricating shops, unable to participate in bridge work to any extent, are competing sharply for such

This 85" hollow-section ring is produced by The French Oil Mill Machinery Company, Piqua, Ohio. It weighs 6500 lbs. and meets tensile strength requirements of 40,000 lbs.

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small work of other types as appears.

**Chicago** — Structural shape producers do not look for any appreciable decline in demand for their product during fourth quarter. Quotas to customers for this period are approximately the same as for third quarter, which obviously is not enough to satisfy all demands.

**Los Angeles** — Pressure for structural, especially up to 6 inches and 4 x 4 and 4 x 3 inches heavy angles, is weaker. Inquiry is high but the heat is definitely off customers' requests for tonnage. Distributors are refusing allocations for bar sized shapes and light structural.

**San Francisco** — Bethlehem Pacific Coast Steel Corp. will supply more than 7600 tons of structural steel for the Ford Motor Co.'s assembly plant in Milpitas, Calif. Steel now being fabricated will be delivered to the plant site in October and is expected to be erected by February.

## Tubular Goods . . .

Tubular Goods Prices, Page 127

**Chicago** — Facilities for producing line pipe and casing are fully engaged at present and business on books will support high operations for many months to come. Despite this, demand pressure isn't as intense as a year ago. This may be significant. While it may be merely a pause, it could be a scaling down in requirements.

Due to increases in steel, labor and other costs, Nikoh Tube Co., this city, announced it had found it necessary to raise its prices on all grades, quantities, and all other tubing extras. The increase is 3 per cent of the company's list price of June 15, 1953, and became effective July 15.

**Boston** — Steel pipe distributors are taking a larger slice of August-September butt-weld allotments. Turn-back next month is nearer 10 per cent whereas but 50 to 60 per cent of quotas have been accepted in the last three months.

Pressure and mechanical tubing is easing gradually. Jobbers are able to rack more sizes and grades from current deliveries. Seamless, notably 5 to 10-inch, is in strong demand, but some easing in this class of pipe is expected because of new capacity to cover oil country requirements.

**Pittsburgh** — Demand for tubing from producers in this area remains strong with orders beginning to come in for fourth quarter.

Seamless tubing demand is particularly strong. Oil country and pressure tubing orders are brisk and are expected to remain at high level through the final quarter.

Farm equipment manufacturers are using less seamless mechanical tubing for steering shafts and axles, but warehouses are taking up this slack with increased orders.

## Pig Iron . . .

Pig Iron Prices, Page 120

**Pittsburgh** — Summer doldrums continue in the pig iron market in this district. Vacations contribute to the market's slow pace. Pickup in the fall is expected, barring a general business letdown.

A producer here says orders from plumbing and heating industries have fallen 60 per cent from this year's high point. Demand is still strong for ingot molds while agricultural implement makers' orders are decreasing.

A world's record time for relining a blast furnace was established July 20 when U. S. Steel's Donora Steel & Wire Works relighted its No. 1 blast furnace 15 days, 10.5 hours after starting repairs. The furnace was taken out of production July 5 and was completely relined from the mantle up. Best previous time for a similar relining is 19 days.

Donora's No. 1 stack has been producing more than a half century and is now beginning its 13th campaign. Its last campaign, which began Jan. 3, 1949, following a complete rebuilding, produced 1,041,209 net tons of iron. The daily rated production of the stack is 652 tons.

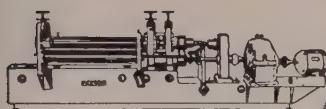
**Cleveland** — Merchant pig iron sellers report vacation suspensions at foundries have slowed down demand, but not to the extent expected. Some shops have continued to take in iron right along and now that they are resuming operations expectations are they will need additional tonnage soon. Noticeable improvement in demand is not expected until late August or early September, however.

**Youngstown** — Two blast furnaces in this area are idle. Sharon Steel Corp.'s Mary furnace at Lowellville, O., is down for relining, and Pittsburgh Coke & Chemical Corp.'s Anna furnace at Struthers, O. is on the inactive list. This latter stack was under lease to General Motors Corp. but the company recently shut it down because it could get iron at lower cost from another furnace. The lease runs until next year.

**New York** — Demand for iron lags, but the movement is slightly better than during the first half of this month, when the vacation season reached its peak. Most sellers doubt if there will be a return to pre-vacation levels until early in September.

**Buffalo** — Although the vacation period is reflected in a slower mer-

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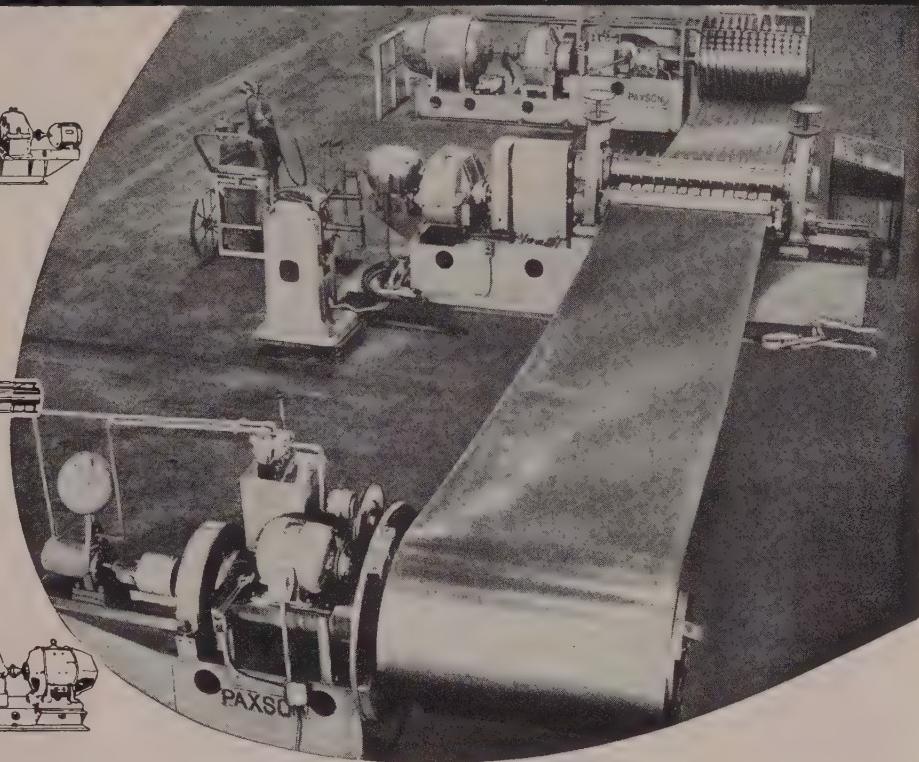
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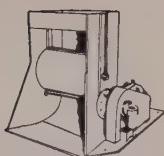
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chiant pig iron market, current furnaces output is going readily into consuming channels, an estimated 80 per cent being for ingot production. One producer with an idle furnace reports the market situation normal as the parent company has one of its main plants down. Automotive buyers are still active in the pig iron market.

**Philadelphia** — Although pig iron demand still lags, there is a slightly better movement as more foundries complete vacation schedules. Meanwhile, the Swedeland, Pa., producer is stocking iron in expectation of suspending operations at its smaller stack later in the summer for relining, a job that may take from six to eight weeks.

**Chicago**—Good fourth quarter demand for gray iron castings appears in prospect with every consuming group, except farm equipment, projecting high manufacturing schedules. Leading the pace is the automobile industry which shows no early break in car assemblies.

Right now foundry output is restricted by vacation closings during which time order backlogs are reported increasing. Pig iron supply appears adequate to meet demand the remainder of the year.

**Birmingham**—Merchant iron producers report demand for pig iron continues on "the soft side." Three of the district's blast furnaces are temporarily idle.

**Seattle**—Local foundries have been notified of an increase of \$1.50 per ton on basic iron and on No. 2 foundry iron by Geneva, the new levels being \$57.50 and \$58 respectively.

Foreign iron is on a competitive basis, one plant reporting purchase of 150 tons of Australian pig iron which averages \$5 per ton under the domestic market.

The Pacific Coast-River Platte-Brazil Conference announced a cut of \$2.50 per ton in pig iron rates from this area to South America, effective July 6 to Sept. 30. The new rates are \$21, weight ton contract, \$24 non-contract.

### Permanent Magnet Prices Up

**Detroit**—The Carboly Department, General Electric Co., has increased its permanent magnet prices an average of 10 per cent. Officials state the increase is due to increased labor costs in manufacturing. The increase covers alnico type, sintered and cast, Carboly permanent magnets.

### Scrap . . .

Scrap Prices, Page 150

**Cleveland**—Based on a small sale to an area steelmaker, heavy melting steel is quoted about \$1 per ton higher at \$45 to \$46 and some other open-hearth grades have moved up sympathetically. The market is extremely dull, however, and prices lack buying support.

No real test is anticipated until the mills re-enter the market for substantial tonnage, expected by some in the trade next month or September at latest. Some improvement in buying activity in the cast grades is anticipated with many of the foundries about completing their vacation suspensions.

**Buffalo**—New business is reported in No. 1 heavy melting steel with the prevailing price range of \$43.50 to \$44.50. Steady strength led to some disagreement among dealers over the price for No. 1 material and there are indications some of them may be paying advanced prices to take care of commitments.

Turnings have been revised downward as this market has not gone along with strength in nearby districts outside the shipping area. Scrap supplies generally are described as good.

**New York**—Brokers have increased their buying prices on No. 2 heavy melting steel \$1 a ton to a range of \$31 to \$32. Other major open hearth grades are unchanged; also borings and turnings and low phos.

Actually, the undertone of the market in open-hearth scrap is fairly strong. This is not true, however, in regard to cast grades, although in the case of unstripped motor blocks prices have advanced \$1 to a spread of \$25 to \$26.

**Philadelphia**—Steel scrap prices continue generally unchanged. All major grades are steady although there is a slight easing in structural and plate to \$46 to \$47 delivered. In cast grades, unstripped motor blocks are higher at \$32 delivered.

**Pittsburgh**—Price of scrap continues to gain, reflecting an undercurrent of strength in the market. Prices of No. 1 cupola and heavy turnings both increased the past week. Aside from the gradual increases, scrap activity is quiet in this district.

**Cincinnati**—The market remains unchanged except for a \$1 rise in No. 1 railroad heavy melting. Best guess here is that prices will remain unchanged in August.

**Youngstown**—District steel plants are producing at a high rate with good quantities of hot metal and

(Please Turn to Page 148)



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# CURRENT FERROALLOY QUOTATIONS

Prices as reported to STEEL

## MANGANESE ALLOYS

**Spiegelisen:** (19-21% Mn, 1-3% Si). Carload per gross ton, \$85, Palmerton, Pa.; \$85, Pittsburgh and Chicago; (16% to 19% Mn) \$1 per ton lower.

**Standard Ferromanganese:** (Mn 74-76%, C 7% approx.) Base price per net ton \$200, Etna, Johnston and Sheridan, Pa.; add or subtract \$2.00 for each 1% or fraction thereof of contained manganese over 76% or under 74%, respectively.

(Mn 76-80%) 13.15c. per pound of contained Mn, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; and Portland, Ore.

(Mn 79-81%) Lump, \$208 per net ton, f.o.b. Anaconda or Great Falls, Mont. Add \$2.60 for each 1% above 81%; subtract \$2.60 for each 1% below 79%, fractions in proportion to nearest 0.1%.

**Low-Carbon Ferromanganese, Regular Grade:** (Mn 85-90%). Carload, lump, bulk, max. 0.07% C, 27.95c. per lb of contained Mn, carload packed 28.7c., ton lots 29.8c., less ton 31.0c. Delivered. Deduct 0.5c. for max. 0.15% C grade from above prices, 1c. for max. 0.30% C, 1.5c. for max. 0.50% C, and 4.5c. for max. 75% C—max. 7% Si. **Special Grade:** (Mn 90% min, C 0.07% max, P 0.06% max). Add 2.05c. to the above prices, Spot, add 0.25c.

**Medium-Carbon Ferromanganese:** (Mn 80-85%, C 1.5% max). Carload, lump, bulk, 21.35c. per lb of contained Mn, carload packed 22.1c., ton lot 23.2c., less ton 24.4c. Delivered. Spot, add 0.25c.

**Manganese metal, 2" x D** (Mn 95.5% min, Fe 2% max, Si 1% max, C 0.2% max): Carload, lump, bulk, 36.2c. per lb of metal; packed, 36.95c.; ton lot 38.45c.; less ton lots 40.45c. Delivered. Spot, add 2c.

**Electromanganese:** Carload, 30c.; ton lots, 32c.; 250 to 1999 lb, 34c. Premium for hydrogen-removed metal, 1.5c. per pound, f.o.b. cars Knoxville, Tenn. Freight allowed to St. Louis or to any point east of Mississippi.

**Silicomanganese:** (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si, 11.4c. per lb of alloy, carload packed, 12.15c., ton lots 13.05c., less ton 14.05c. Freight allowed. For 2% C grade, Si 15-17%, deduct 0.2c. from above prices. For 3% C grade, Si 12-14.5%, deduct 0.5c. from above prices. Spot, add 0.25c.

## TITANIUM ALLOYS

**Ferrotitanium, Low-Carbon:** (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lots 2" x D, \$1.50 per lb of contained Ti; less ton \$1.55. (Ti 35-43%, Al 8% max, Si 4% max, C 0.10% max). Ton lots \$1.35, less ton \$1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot add 5c.

**Ferrotitanium, High-Carbon:** (Ti 15-18%, C 6-8%). Contract \$177 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi river and north of Baltimore and St. Louis.

**Ferrotitanium, Medium-Carbon:** (Ti 17-21%, C 2-4.5%). Contract \$195 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

## CHROMIUM ALLOYS

**High-Carbon Ferrochrome:** Contract, c.i.l., lump, bulk 24.75c. per lb of contained Cr; c.i.l., packed 25.65c., ton lot 28.80c., less ton 28.20c. Delivered. Spot, add 0.25c.

**Low-Carbon Ferrochrome:** (Cr 67-72%) Contract, carload, lump, bulk, max. 0.025c. C (simplex) 34.50c. per lb contained Cr, 0.03% C 36.50c., 0.04% C 35.50c., 0.06% C 34.50c., 0.10% C 34.00c., 0.15% C 33.75c., 0.20% C 33.50c., 0.50% C 33.25c., 1% C 33.00c., 1.50% C 32.85c., 2% C 32.75c. Carload packed add 1.1c., ton lot 2.2c., less ton add 3.9c. Delivered. Spot, add 0.25c.

**Foundry Ferrochrome, High Carbon:** (Cr 62-66%, C 5-7%) Contract, c.i.l. 8 M x D, bulk, 26.25c. per lb of contained Cr C.I., packed 27.15c., ton 28.50c., less ton 30.25c. Delivered. Spot, add 0.25c.

**Foundry Ferrochrome, Low Carbon:** (Cr 50-54%, Si 28-32%, C 1.25% max.) Contract, carload, packed, 8 M x D, 18.35c. per lb of alloy; ton lot 19.2c.; less ton lot, 20.4c., delivered; spot, add 0.25c.

**Low-Carbon Ferrochrome Silicon:** (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk, 25.75c. per lb of contained chromium plus 12.4c. per pound of contained silicon; 1" x down, bulk 25.90c. per pound of contained chromium plus 12.60c. per pound of contained silicon. F.o.b. plant; freight allowed to destination.

**Ferrochrome Silicon, No. 2:** (Cr 36-39%, Si 26-39%, Al 7-9%, C 0.05% max.) 25.75c. per lb of contained chrome plus 12.4c. per lb of contained silicon plus aluminum 3" x down, delivered.

**Chromium Metal:** (Min 97% Cr and 1% Fe) contract, carload, 1" x D; packed, max. 50.50c., \$1.12 ton lots, \$1.14 less ton \$1.16. Delivered. Spot, add 5c.; prices on 0.10 per cent carbon grade, \$1.12 per lb of contained chromium, up 4c.

## VANADIUM ALLOYS

**Ferrovanadium:** Open-hearth Grade (V 35-55%, Si 8-12% max, C 3-3.5% max). Contract, any quantity, \$3.00 per lb of contained V. Delivered. Spot, add 10c. **Crucible-Special Grades:** (V 35-55%, Si 2-3.5% max, C 0.5-1% max), \$3.10. **Primos and High Speed Grades:** (V 35-55%, Si 1.50% max, C 0.20% max) \$3.20.

**Grainal:** Vanadium Grainal No. 1, \$1 per lb; No. 6, 68c.; No. 79, 50c., freight allowed.

**Vanadium Oxide:** Contract, less carload lots \$1.28 per lb contained  $V_2O_5$ , freight allowed. Spot, add 5c.

## SILICON ALLOYS

**25-30% Ferrosilicon:** Contract, carload, lump, bulk, 20.0c. per lb of contained Si, packed 21.40c.; ton lot 22.50c., f.o.b. Niagara Falls, freight not exceeding St. Louis rate allowed.

**50% Ferrosilicon:** Contract, carload, lump, bulk, 12.40c. per lb of contained Si, carload packed 14.0c., ton lot 15.45c., less ton 17.1c. Delivered. Spot, add 0.45c.

**Low-Aluminum 50% Ferrosilicon:** (Al 0.40% max.) Add 1.3c. to 50% ferrosilicon prices.

**75% Ferrosilicon:** Contract, carload, lump, bulk, 14.8c. per lb of contained Si, carload packed 15.6c., ton lot 16.75c., less ton 18.0c. Delivered. Spot, add 0.8c.

**90-95% Ferrosilicon:** Contract, carload, lump, bulk, 17.0c. per lb of contained Si, carload packed 18.2c., ton lot 19.15c., less ton 20.2c. Delivered. Spot, add 0.25c.

**Silicon Metal:** (Min 97% Si and 1% max Fe) C.I. lump, bulk, regular 18.5c. per lb of Si, c.i. packed 19.7c., ton lot 20.6c., less ton 21.6c. Add 0.5c. for max. 0.10% calcium grade. Deduct 0.5c. for max 2% Fe grade analyzing min 96% Si. Spot, add 0.25c.

**Alsifer:** (Approx. 20% Al, 40% Si, 40% Fe) Contract, basic f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.90c. per lb of alloy, ton lots packed 11.30c., 20 to 1999 lb 11.65c., smaller lots 12.15c.

## ZIRCONIUM ALLOYS

**12-15% Zirconium Alloy:** (Zr 12-15%; Si 30-43%; Fe 40-45%, C 0.20% max.) Contract, c.i.l. lump, bulk 8.0c. per lb of alloy, c.i. packed 8.75c., ton lot 9.5c., less ton 10.35c. Delivered. Spot, add 0.25c.

**35-40% Zirconium Alloy:** (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.) Contract, carload, lump, packed 20.25c. per lb of alloy, ton lot 21c., less ton 22.25c. Freight allowed. Spot add 0.25c.

## BORON ALLOYS

**Ferroboron:** (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max.) Contract, 100 lb or more, 1" x D, \$1.20 per lb of alloy. Less than 100 lb \$1.30. Delivered, spot, add 5c. F.O.B. Washington, Pa., prices, 100 lb and over, are as follows: Grade A (10-14% B) 75c per pound; Grade B (14-18% B) \$1.20; Grade C (19% min B) \$1.50.

**Borosil:** (3 to 4% B, 40 to 45% Si), \$5.25 per lb contained B, delivered to destination.

**Bortam:** (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

**Carbortam:** (B 1 to 2%) contract, lump, carloads 9.90c. per lb, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

## CALCIUM ALLOYS

**Calcium-Manganese-Silicon:** (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 20.0c. per lb of alloy, carload packed 20.8c., ton lot 22.3c., less ton 23.3c. Delivered. Spot add 0.25c.

**Calcium-Silicon:** (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 19.0c. per lb of alloy, carload packed 20.2c., ton lot 22.1c., less ton 23.6c. Delivered. Spot add 0.25c.

## BRIQUETTED ALLOYS

**Chromium Briquets:** (Weighing approx. 3% lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 16.25c. per lb of briquet, carload packed 16.95c., ton lot 17.75c., less ton 18.65c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

**Ferromanganese Briquets:** (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk, 12.45c. per lb of briquet, c.i. packed 13.25c., ton lot 14.05c., less ton 14.95c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

**Silicomanganese Briquets:** (Weighing approx. 3% lb and containing exactly 2 lb of Mn and approx. 1/2 lb of Si). Contract, c.i. bulk 12.65c. per lb of briquet, c.i. packed 13.45c., ton lot 14.25c., less ton 15.15c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

**Silicon Briquets:** (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk, 6.95c. per lb of briquet, c.i. packed 7.75c., ton lot 8.85c., less ton 9.45c. Delivered. Spot, add 0.25c. (Small size—weighing approx. 2 1/2 lb and containing exactly 1 lb of Si). Carload, bulk 7.1c., c.i. packed 7.9c., ton lot 8.7, less ton 9.6c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

**Molybdc-Oxide Briquets:** (Containing 2 1/2 lb of Mo each) \$1.14 per pound of Mo contained, f.o.b. Langlofth, Pa.

## TUNGSTEN ALLOYS

**Ferrotungsten:** (70-80%), 10,000 lb W or more, \$4.35 per lb of contained W; 2000 lb W to 10,000 lb W, \$4.45; less than 2000 lb W, \$4.57, f.o.b. Niagara Falls, N. Y.

## OTHER FERROALLOYS

**Ferrocolumbium:** (Cb 56-60%, Si 8% max. C 0.4% max.) Contract, ton lot, 2" x D, \$6.40 per lb of contained Cb, less ton \$6.45. Delivered. Spot, add 10c.

**Ferrotantalum—Columbium:** (Cb 40% approx. Ta 20% approx. and Cb and Ta 60% min, C 0.30% max) ton lots, 2" x D, \$4.75 per lb of contained Cb plus Ta, del'd., less ton lots 4.80.

**Silicac Alloy:** (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, B 0.55-0.75%). Carload packed, 1" x D, 45c. per lb of alloy, ton lot 47c., less ton 49c. Delivered.

**SMZ Alloy:** (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx.) Contract, carload, packed, 1/2" x 12 M, 17.5c. per lb of alloy, ton lots 18.25c., less ton 19.5c. Delivered. Spot, add 0.25c.

**Graphidox No. 4:** (Si 48-52%, C 5-7%, Ti 9-11%). C.I. packed, 17.50c. per lb of alloy; ton lots 18.50c., less ton lots 20c., f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

**V-5 Foundry Alloy:** (Cr 38-42%, Si 17-19%, Mn 8-11%). C.I. packed 15c. per lb of alloy; ton lots 16.50c., less ton lots 17.75c., f.o.b. Niagara Falls; freight allowed to St. Louis.

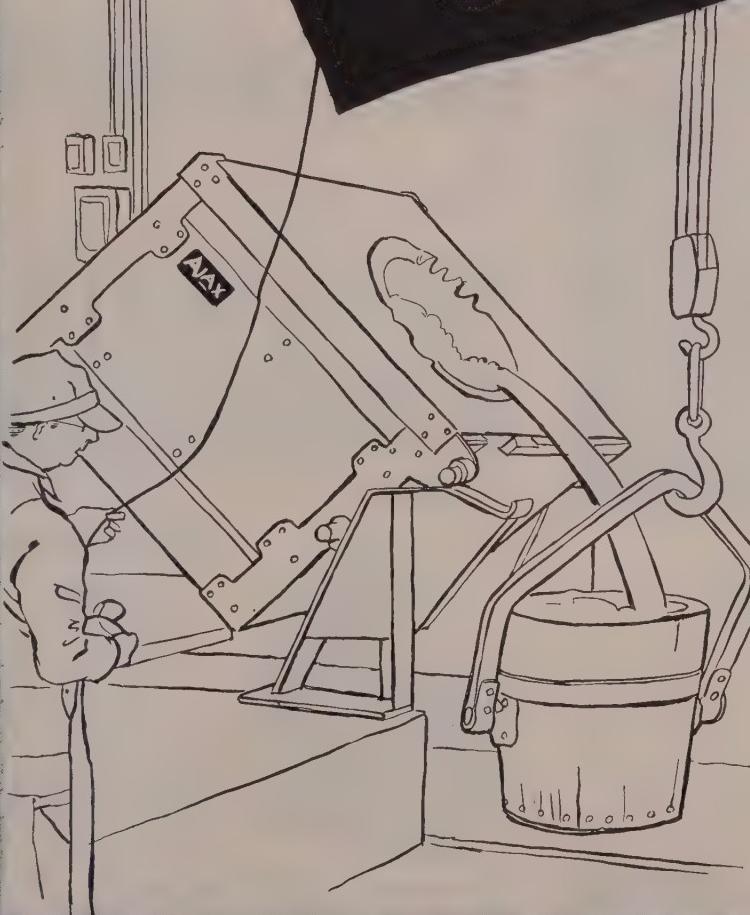
**Simanal:** (Approx. 20% each Si, Mn, Al; bal. Fe) Lump, carload, bulk 14.50c., packed 15.30c. on lots, packed, 15.75c.; less ton lots, packed, 16.25c. per lb of alloy, delivered to destination within United States.

**Ferrophosphorus:** (23-25% based on 24% P content with usage of \$3 for each 1% of P above or below the base); carloads, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., \$65 per gross ton.

**Ferromolybdenum:** (55-75%). Per lb contained Mo, f.o.b. Langlofth, \$1.32 in all sizes except powdered which is \$1.41; Washington, Pa., furnace, any quantity \$1.32.

**Technical Molybdc-Oxide:** Per lb, contained Mo, f.o.b. Langlofth, Pa., \$1.14 in cans; in bags, \$1.13, f.o.b. Langlofth, Pa.; Washington, Pa., \$1.13.

BETTER STAINLESS  
CLOSER CONTROL  
LOWER LABOR COSTS  
*with ALLOYMET 2115*



IN THE production of stainless steels, the trend is toward closer controls of analysis through the use of quality master alloy ingot. Our ALLOYMET 2115 ingot (70% Nickel—10% Chrome) is fast becoming the standard of the industry as a basic raw material in the production of stainless steels.

When ALLOYMET 2115 is used in the melt, the analysis of the finished product is never in doubt. Compare this with a heat of 18-8 scrap . . . but no, there is no comparison. Scrap—no matter how good it may be—is still an imperfect commodity that is generated; not made to order. ALLOYMET 2115, on the other hand, is a master alloy made to rigid specifications under the supervision of trained metallurgists who know the needs of the steel industry.

Steel producers are rapidly learning that to use master alloys in the place of scrap costs so very little more. Prove this by your own use.

**ALTER**  
Alloy Metal Division

COMPANY 1701 Rockingham Road, DAVENPORT, IOWA

Phone 6-2561 Teletype DV 588



RIGHT ANGLE  
(for straight cuts)  
MODEL 75-10 RA  
MODEL 10-15 RA

## WISE ABRASIVE CUT-OFF SAWS

*Give you FASTER CUTS with  
MAXIMUM WHEEL LIFE*

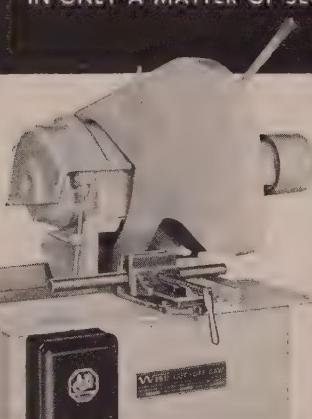
### GREATER POWER IS THE SECRET

Wise saws are power packed with 7 1/2 or 10 h.p. HEAVY DUTY motors. This permits faster cuts with extra hard 18" or 20" wheels. These wheels last longer and, in turn, produce more cuts per wheel dollar!

Wise saws also cost less than similar capacity saws—much less! Construction throughout is heavy duty. Designed to meet the needs of all industries. New safety guard is unmatched. Number 2 Magnetic Starter is standard equipment.

### RIGHT ANGLE OR SWING HEAD TYPES

Both saws have the same outstanding construction and power features. WILL CUT UP TO 6" PIPE AND 8" CHANNEL IN ONLY A MATTER OF SECONDS!



SWING HEAD  
(head swings for  
90° to 45°  
mitre cuts)  
MODEL 75-10 SH  
MODEL 10-15 SH

Write for free descriptive folder No. WS-1000-4. Provides valuable data on recommended wheel grades for different types of cutting.



### HENRY H. WISE CO.

945 WILSHIRE BLVD., LOS ANGELES 17, CALIF.

World's largest distributor of  
Manhattan Abrasive Wheels.

Territories Open  
DISTRIBUTORS AND DEALERS WANTED

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DIESEL • GASOLINE • ELECTRIC • STEAM

THE OHIO LOCOMOTIVE CRANE CO.  
SUICURUS, OHIO

25 TO 50  
TON CAPACITY

## HELP! FOR YOU

### MACHINING, FABRICATING WELDING, ASSEMBLIES OF Plate & Sheet Metal Products

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Phone, write, wire for list of  
equipment and available time.

MACHINE & ENGINEERING CO., INC.  
New Wilmington, Pa. Phone: 2261

The *Cleveland Steel Tool Co.*  
• PUNCHES • DIES • CHISELS • RIVET SETS •

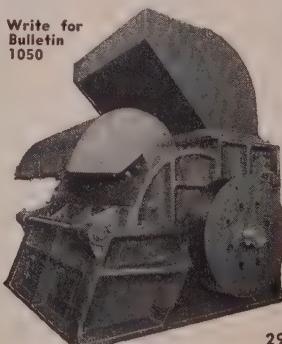
IF IT'S RIVETED YOU KNOW IT'S SAFE

WE FEATURE SPECIAL PUNCHES & DIES  
660 E. 82nd ST., CLEVELAND, O.

HOT DIP  
**GALVANIZING**  
SOUTHERN GALVANIZING CO.  
BUEN STREET AND E. CORN, BALTIMORE, MD.  
Ideally located for export  
LOW RAIL AND WATER RATES, EAST AND WEST

PROCESSING MACHINERY MANUFACTURERS SINCE 1885

Write for  
Bulletin  
1050



### Metal Turnings Crushers-

any capacity for  
your Plant requirement

NOTE: Premium prices for  
short shovel turnings. See  
page (steel scrap prices)

**GRUENDLER**  
CRUSHER & PULVERIZER Co.

2917 No. Market St. St. Louis 6, Mo.



VICTOR R. BROWNING & CO., INC.

WILLOUGHBY (Cleveland), OHIO

To lower  
your Overhead.

BROWNING ELECTRIC  
TRAVELING CRANES AND HOISTS  
up to 125-TON CAPACITY

## ORES-COKE-REFRACTORIES

Prices as reported to STEEL; changes shown in Italic.

## ORES

## Lake Superior Iron Ore

(Prices effective July 1, 1953, and thereafter; gross ton, 51.50% iron natural, rail of vessel, lower lake ports.)

Old range bessemer .....	\$10.30
Old range nonbessemer .....	10.15
Mesabi bessemer .....	10.05
Mesabi nonbessemer .....	9.90
Open-hearth lump .....	11.15
High phosphorus .....	9.90
The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect on June 24, 1953, and increases or decreases after such date are for buyer's account	

## Eastern Local Iron Ore

Cents per unit del. E. Pa.  
Foundry and basic 56-62% concentrates  
contract .....

17.00-18.00

## Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:

Spot .....	nom
Long-term contract .....	22.00

North African hematites (spot) ... 24.00-26.00

Brazilian iron ore, 68-69% (spot) ... 25.00

## Tungsten Ore

Net ton unit, duty paid  
Foreign wolframite and scheelite, per  
net ton unit .....

\$55.00

Domestic scheelite, mine .....

63.00

## Manganese Ore

Manganese, 48% unitary, \$1.18-1.21 per long  
ton unit, c.i.f. U. S. ports, duty for buyer's  
account; shipments against old contracts for  
48% ore are being received from some sources  
at 90-93¢.

## Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean  
freight differential for delivery to Portland,  
Oreg., or Tacoma, Wash.

## Indian and African

48% 2.8:1 .....	\$40.00-\$42.00
48% 3:1 .....	44.00-46.00
48% no ratio .....	32.00-34.00

## South African Transvaal

44% no ratio .....	\$27.00-28.00
48% no ratio .....	34.00-35.00

## Brazilian

44% 2.5:1 lump .....	nom. \$32
----------------------	-----------

## Domestic

(Rail nearest seller)	
48% 3:1 .....	\$39.00

## Molybdenum

Molybdenum concentrates per lb. molyb- denum content, mines .....	\$1.00
--	--------

## REFRACTORIES

## Fire Clay Brick

High-Heat Duty: Pueblo, Colo., \$89.00; Ash-  
land, Grahn, Hayward, Hitchins, Haldeman,  
Olive Hill, Ky., Athens, Troup, Tex., Beech  
Creek, Clearfield, Curwensville, Lochhaven,  
Lumber, Orvisont, West Decatur, Pa., Besse-  
mer, Ala., Farber, Mexico, St. Louis, Van-  
dalia, Mo., Ironton, Oak Hill, Parral, Ports-  
mouth, O., Ottawa, Ill., Stevens Pottery, Ga.,  
Woodbridge, N. J., \$99.30; Salina, Pa.,  
\$104.55; Niles, O., \$109; Los Angeles, Pitts-  
burg, Calif., \$132.30

## Silica Brick

Standard: Alexandria, Claysburg, Mt. Union,  
Sprout, Pa., Ensley, Ala., Portsmouth, O.,  
\$99.30; Hays, Pa., \$105.10; Niles, O., \$107; E.  
Chicago, Ind., Joliet, Rockdale, Ill., \$108.70;  
Cutler, Utah, \$116.55; Los Angeles, \$122.85.

## Insulating Fire Brick

2300° F: Massillon, O., \$178.50; Clearfield,  
Pa., \$179.55; Augusta, Ga., Beaver Falls, Zell-  
enopke, Pa., Mexico, Mo., \$186.90.

## Ladle Brick

Dry Pressed: Bessemer, Ala., \$64.60; Alsey,  
Ill., Chester, New Cumberland, W. Va., Free-  
port, Johnstown, Merrill Station, Pa., Wells-ville, O., \$69.30; Mexico, Mo., \$73.50; Clear-  
field, Pa., Portsmouth, O., \$83; Peria, Ark.,  
\$92.40; Los Angeles, \$110.25; Pittsburg, Calif.,  
\$111.30.

## Sleeves

Reedsdale, Pa., \$127; Johnstown, Pa., \$127.30;  
Clearfield, Pa., \$135; St. Louis, \$138; Athens,  
Tex., \$140.90.

## Nozzles

Reedsdale, Pa., \$203.20; Johnstown, Pa.,  
\$208.40; Clearfield, Pa., \$219.45; St. Louis,  
\$224.65; Athens, Tex., \$225.20.

## Runners

Reedsdale, Pa., \$155.20; Johnstown, Pa.,  
\$161.70; Clearfield, Pa., \$168.60; St. Louis,  
\$170.30; Athens, Tex., \$174.40.

## High-Alumina Brick

50 Per Cent: Clearfield, Pa., St. Louis, Mexi-  
co, Mo., \$166.30; Danville, Ill., \$169.30.60 Per Cent: St. Louis, Mexico, Vandalia, Mo.,  
\$210.20; Danville, Ill., \$213.20.70 Per Cent: St. Louis, Mexico, Vandalia, Mo.,  
\$244.85; Danville, Ill., \$247.85; Clearfield, Pa.,  
\$252

## METALLURGICAL COKE

## Price per net ton

## Beehive Ovens

Connellsville, furnace .....

\$14.50-15.00

Connellsville, foundry .....

16.50-17.00

New River foundry .....

20.80

Wise county foundry .....

15.95

Wise county, furnace .....

15.20

## Oven Foundry Coke

Kearney, N. J., ovens .....

\$24.00

Everett, Mass., ovens .....

New England, del.

\*26.00

Chicago ovens .....

24.50

Chicago, del. ....

26.00

Terre Haute, ovens .....

24.05

Milwaukee, ovens .....

25.25

Indianapolis, ovens .....

24.25

Chicago, del. ....

28.12

Cincinnati, del. ....

25.85

Painesville, O., ovens .....

25.50

Cleveland, del. ....

27.43

Erie, Pa., ovens .....

25.00

Birmingham, ovens .....

21.65

Cincinnati, del. ....

26.55

LoneStar, Tex., ovens .....

18.50

Philadelphia, ovens .....

23.95

Swedenland, Pa., ovens .....

23.85

St. Louis, ovens .....

26.00

St. Louis, del. ....

23.75

Portsmouth, O., ovens .....

24.00

Cincinnati, del. ....

26.62

Detroit, ovens .....

25.50

Detroit, del. ....

26.50

Buffalo, del. ....

28.08

Flint, del. ....

28.23

Pontiac, del. ....

27.06

Saginaw, del. ....

28.58

\*Or within \$4.55 freight zone from works.

## COAL CHEMICALS

## Spot, cents per gallon, oven.

Pure benzol .....

36.00

Toluol, one deg. ....

30.00-33.00

Industrial xylo .....

30.00-33.50

## Per ton, bulk, ovens

Sulphate of ammonia .....

\$44-45

Birmingham area .....

\$49.50

## Cents per pound, ovens

Phenol, 40 (carlots, nonreturnable  
drums) .....

17.25

## FLUORSPAR

Metallurgical grade f.o.b. shipping point, In-  
dianapolis, Ky., net tons, carloads, effective CaF<sub>2</sub>  
content 72.5%, \$44; 70%, \$42.50; 60%, \$38.  
Imported, net ton, duty paid, metallurgical  
grade, \$35-\$36.STEEL  
PLATE  
WORK

## TURBINE CASINGS

and other heavy steel plate  
work are fabricated at Pusey-  
Jones of Hot-Rolled, High-  
Strength, Low-Alloy Steel.Every facility for large  
scale metal fabricating:— Heavy plate shop  
equipment — Rolls —  
Shears — Bending furnaces.Stress relieving furnace 33'x18'x16' up to  
2100°F. Machine shop  
for facing, turning, and  
boring. 50 ton capacity  
gray iron foundry. Deep-water transportation on  
one side, the Pennsylvania RR on the other.  
Talk to our development  
engineers.

Metals Fabrication Division

THE PUSEY AND JONES CORP.

506 Front St., Wilmington, Del.

Established 1848

PUSEYJONES

**Scrap . . .**

(Continued from Page 142)

quality scrap available. Mill scrap inventories are reported substantial, but they are buying material for current requirements. Scrap prices are firm.

**Detroit** — The scrap market here continues quiet. Buying is relatively inactive pending list closings at weekend. Prices for the moment are unchanged. Steelmaking operations in this district last week averaged 107 per cent of capacity, off slightly from the 108.2 per cent mark reported the preceding week. A year ago the district steel rate was 49 per cent.

**Chicago** — Although the volume of scrap moving in this area is off markedly there has been noticeable improvement the past week. Resumption of numerous manufacturing plants following vacation shutdowns is the explanation.

Upward pressure on prices continues but there is a difference of opinion

as to whether substantially higher figures will prevail when a major mill purchases for August delivery. This acquisition impends.

**Los Angeles** — Little steelmaking or foundry scrap is moving in this district. Kaiser Steel Corp., Fontana Works is still out of the market. Affected by vacations and other seasonal factors foundries have reduced scrap consumption as much as 50 per cent. Scrap prices remain unchanged.

**Seattle** — Scrap yard inventories are down. Current price levels are unattractive and not conducive to accumulating stocks. There is a steady movement to the mills which hold comfortable inventories. Prices are stable.

It is reported licenses have been granted for limited exports of scrap from the Los Angeles area to Mexico on a quarterly basis. Washington state and Oregon interests seek permits.

**Iron Ore . . .**

Iron Ore Prices, Page 147

**Cleveland** — Consumption of Lake Superior iron ore was off slightly in June, reflecting to some extent the shorter month. Continued heavy use through the year is indicated.

Data compiled by the Lake Superior Iron Ore Association show consumption during the month was 8,056,067 gross tons, comparing with 8,358,260 tons in May and with 1,404,811 tons in June a year ago during which period blast furnace operations were severely curtailed by the steelworkers' strike.

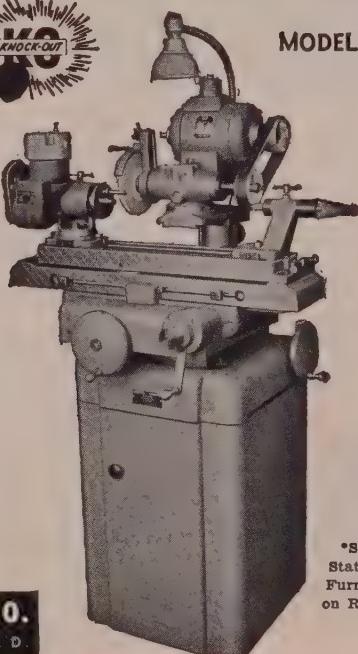
Total consumption of lake ore in the 1953 season to date now stands at 48,124,407 gross tons, comparing with 37,789,349 in the like period of 1952.

Stocks of lake ore on lower lake docks and at furnaces on July 1 were 32,069,689 gross tons. This compares with 26,247,318 on June 1 of

**DETROIT STAMPING COMPANY**

Especially geared for light to medium heavy stampings and high volume runs of small, intricate "Multi-Stampings." We invite your inquiry or write for Stamping Brochure.

**There's a reason 76%\***  
of all popularly-priced Tool and Cutter Grinders  
sold in 1952 were "Knock-Outs"



MODEL B860

Will do anything that machines costing 2 or 3 times more will do . . . yes and in less time.

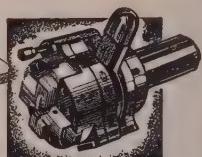
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Only Through  
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**K. O. LEE CO.**  
ABERDEEN, S. D.

\*Sales  
Statistics  
Furnished  
on Request



famous for accuracy and straightness of threads, low chaser costs, less downtime, more pieces per day.



THE EASTERN MACHINE SCREW CORP., 22-42 Barclay Street, New Haven, Conn. Pacific Coast Representative: A. C. Berbringer, 334 N. San Pedro St., Los Angeles, California. Canada: F. F. Barber Machinery Co., Toronto, Canada.

**HOT DIP GALVANIZING**

JOSEPH P. CATTIE &amp; BROTHERS, INC.

2520 East Hagert Street

Phone: Re-9-8911

Philadelphia 25, Pa.

**PERFORATED METALS**  
TO YOUR REQUIREMENTS

FOR  
**ALL INDUSTRIAL USES**  
**ARCHITECTURAL GRILLES**

SEND FOR CATALOG NO. 35  
**DIAMOND MFG. CO.**

BOX 32

WYOMING, PA.

his year and with 27,169,667 on July a year ago.

Only 15 of a total of 204 blast furnaces in this country and Canada were idle on July 1, the same number as on June 1. On July 1, 1952, 152 stacks were idle.

Ore continues to move down the lakes in record-breaking volume. Despite delays occasioned by fog, the fleet brought down 3,283,728 tons in the week ended July 20, for a new weekly record. This exceeded the previous record mark, set in the preceding week, by 17,790 tons.

Total shipments in the 1953 season to date are reported at 45,076,959 gross tons. This compares with only 21,900,000 tons in the like period of the 1952 lake shipping season.

## Fasteners . . .

Bolt, Nut, Rivet Prices, Page 127

**New York**—Effective July 20, Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y., announced new gross lists applying to all types and sizes of nuts.

The new lists permit consolidation of most discounts. In several popular items of small nuts, prices are lower, while in the larger sizes, generally, prices are higher. In the latter sizes, it is explained, there has been relatively less improvement in the manufacturing processes and technique, to say nothing of a substantial increase in steel costs and a heavy scrap factor.

In announcing the new lists, the company said that discounts previously in use dated back 26 years and had become unrealistic and out of balance. Preparation of the new lists, it was pointed out, involved an analysis of costs, based upon use of up-to-date equipment and manufacturing technique.

Since Apr. 15, when the company made its last price change, the cost of steel has advanced well over 10 per cent and other cost factors show a corresponding increase.

## STRUCTURAL SHAPES . . .

### STRUCTURAL STEEL PLACED

- 2400 tons, 22-story office building, 460 Park Ave., New York, through Tishman Construction Co., to Bethlehem Steel Co., Bethlehem, Pa.
- 2000 tons, section, Major Deegan state highway, Bronx county, New York, through Slattery Contracting Co., to American Bridge Division, U. S. Steel Corp., Pittsburgh.
- 1735 tons, bridge work, state thruway, Orange and Rockland counties, New York, through Mt. Vernon Contracting Co., to Phoenix Bridge Co., Phoenixville, Pa.
- 1200 tons, store building, F. W. Woolworth Co., Richmond, Va., to Bethlehem Steel Co., Bethlehem, Pa.; Wiss Contracting Co., Richmond, general contractor.
- 1000 tons, hangar and facilities, Logan International Airport, East Boston, Mass., to Groisser & Shlager Iron Works, Somerville, Mass.; Farina Bros., Newton, Mass., general contractors.
- 950 tons, plant addition, Bakelite Co., division of Union Carbide & Carbon Co., Marietta, O., to American Bridge Division, U. S. Steel Corp., Pittsburgh.
- 695 tons, hangar, Teterboro, N. J., to Bethlehem Contracting Co., Bethlehem, Pa.
- 500 tons or more, maintenance hangars, Pensacola, Fla., to Decatur Steel Co.; Farnsworth & Chambers, Houston, Tex., general contractors.
- 435 tons, Major Deegan state highway, Bronx county, New York, through Lawrence J. Rice Inc., to Lehigh Structural Steel Co., Allentown, Pa.
- 370 tons, electric station, Lawrenceburg, Ind., for the American Gas & Electric Service Corp., to the American Bridge Division, U. S. Steel Corp., Pittsburgh.
- 370 tons, train shed, New York, New Haven & Hartford, New Haven, Conn., to New England Iron Works, Hamden, Conn.
- 367 tons, state bridge work, Brooklyn-Queens highway, New York, to American Bridge Division, U. S. Steel Corp., Pittsburgh.
- 225 tons, central heating plant, Dover, Del., through Frederick Roff, to City Iron Works.
- 220 tons, state highway bridge, Billerica, Mass., to Phoenix Bridge Co., Phoenixville, Pa., Coleman Bros., Boston, general contractors.
- 205 tons, state bridge work, Chenango county, New York, through Talarica Co. and Baron Construction Inc., to Bethlehem Steel Co., Bethlehem, Pa.
- 180 tons, plant addition, General Electric Co., Cleveland, through the General Electric Realty Co., to Burger Iron Co., Akron, O.
- 150 tons, plant addition, Precision Drawn Steel Co., Camden, N. J., to Camden Iron Works, that city; Consolidated Construction Co., Woodbury, N. J., general contractor.
- 127 tons, section, Major Deegan state highway, Bronx county, New York, through Slattery Contracting Co., to Bethlehem Steel Co., Bethlehem, Pa.
- 115 tons, Uptown junior high school, New Orleans, La., to Orleans Materials & Equipment Co., New Orleans; R. P. Farnsworth Co., New Orleans, general contractor.
- 100 tons or more seminary addition, St. Clement's Hall, St. John's Seminary, Brighton, Boston, to Bethlehem Steel Co., Bethlehem, Pa.; Thomas O'Connor & Co., Inc., Cambridge, Mass., general contractor; bars to West End Iron Works, Cambridge.
- 100 tons or more, addition, James Talcott high school addition, West Hartford, Conn., to City Iron Works, Hartford; Bartlett & Brainerd Co., Hartford, general contractor; reinforcing bars to Scherer Steel Co., Hartford.

### STRUCTURAL STEEL PENDING

- 4300 tons, bridge work, New York state thruway, Ulster county, bids Aug. 6.
- 3365 tons, state bridgework, Philadelphia and Montgomery counties, Pennsylvania, new bids July 31.
- 1500 tons, state bridge, Bucks county, Pennsylvania, Langenfelder Co., Baltimore, low on general contract.
- 880 tons, state thruway bridge work, Oneida and Herkimer counties, New York, S. J. Groves & Sons, low on general contract.
- 650 tons, research laboratory, Schenectady, N. Y., through G. E. Realty Co., to Topper & Griggs, Connecticut contractors.

(Please Turn to Page 152)



MADE TO SUIT Your  
FABRICATING NEEDS

## WELDED and COLD DRAWN STAINLESS STEEL

- And other heat and corrosion resistant alloys—made with Quality Control through every step of manufacture.

CUSTOMERS SAY: "Best fabricating and machining qualities we ever had."

## HELICAL TUBE CORPORATION

19 Washington Street, East Orange, N. J.

MILL: 1825 Monroe Ave., N.W.

Grand Rapids 5, Mich.

*Friendly*

and so very much more

Hotel Cleveland has a warm and friendly welcome for you—but it has more, too. It's located in the heart of Cleveland, and directly connected with Union Passenger Terminal.

*Hotel  
Cleveland*  
CLEVELAND, OHIO

### OTHER SONNABEND OPERATED HOTELS

- Chicago: Edgewater Beach Hotel
- Boston: The Somerset, The Shelton
- New York City: Ritz Tower
- Resorts: Whitehall, Palm Beach, Fla.  
Samoset, Rockland, Me.



**Certified Metal Abrasives**

**FOR USE IN BLAST CLEANING EQUIPMENT**

**SAMSON SHOT ANGULAR GRIT**

PITTSBURGH CRUSHED STEEL CO., PITTSBURGH, PA.  
STEEL SHOT & GRIT CO., BOSTON, MASSACHUSETTS

## IRON AND STEEL SCRAP

Consumer prices, per gross ton, except as otherwise noted, including broker's commissions, as reported to STEEL. Changes shown in italics.

## STEELMAKING SCRAP COMPOSITE

July 23	\$43.42
July 16	43.42
June avg.	40.50
July 1952	42.60
July 1948	41.43

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

## PITTSBURGH

(Delivered consumer plant)

No. 1 heavy melting...	44.00-45.00
No. 2 heavy melting...	43.00-44.00
No. 1 bundles .....	44.00-45.00
No. 2 bundles .....	41.00-42.00
No. 1 busheling .....	44.00-45.00
Machine shop turnings	27.00-28.00
Mixed borings, turnings	27.00-28.00
Short shovel turnings	31.00-32.00
Cast iron borings	30.00-31.00
Cut structurals	48.00-49.00
Heavy turnings	41.00-42.00
Punchings & plate scrap	49.00-50.00
Electric furnace bundles	48.00-49.00

## Cast Iron Grades

No. 1 cupola .....	43.00-44.00
Charging box cast ...	42.00-43.00
Heavy breakable cast...	40.00-41.00
Unstripped motor blocks	35.00-36.00
No. 1 machinery cast...	49.00-50.00

## Railroad Scrap

No. 1 R.R. heavy melt...	46.00-47.00
Rails, 2-ft. and under	53.00-54.00
Rails, 18-in. and under	54.00-55.00
Rails, random lengths	49.00-50.00
Rails specialties .....	51.50-52.50

## CLEVELAND

(Delivered consumer plant)

No. 1 heavy melting...	45.00-46.00
No. 2 heavy melting...	41.00-42.00
No. 1 bundles .....	45.00-46.00
No. 2 bundles .....	39.00-40.00
No. 1 busheling .....	45.00-46.00
Machine shop turnings	24.00-25.00
Mixed borings, turnings	28.00-29.00
Short shovel turnings	28.00-29.00
Cast iron borings	28.00-29.00
Low phos.	46.00-47.00
Alloy free, short shovel turnings	31.00-32.00
Electric furnace bundles	45.00-46.00

## Cast Iron Grades

No. 1 cupola .....	45.00-46.00
Charging box cast ...	44.00-45.00
Stove plate .....	43.00-44.00
Heavy breakable cast...	38.00-39.00
Unstripped motor blocks	27.00-28.00
Brake shoes .....	38.00-39.00
Clean auto cast ...	46.00-47.00
No. 1 wheels .....	40.00-41.00
Burnt cast .....	35.00-36.00
Drop broken machinery	49.00-50.00

## Railroad Scrap

No. 1 R.R. heavy melt...	46.00-47.00
R.R. Malleable .....	49.00-50.00
Rails, 3-ft. and under	52.00-53.00
Rails, 18 in. and under	55.50-56.50
Rails, random lengths	48.50-49.50
Cast steel .....	50.00-51.00
Railroad specialties .....	52.00-53.00
Uncut tires .....	51.00-52.00
Angles, splice bars ...	52.50-53.50
Rails, rerolling .....	55.00-56.00

## YOUNGSTOWN

(Delivered consumer plant)

No. 1 heavy melting...	45.00-46.00
No. 2 heavy melting...	42.00-43.00
No. 1 bundles .....	45.00-46.00
No. 2 bundles .....	40.00-41.00
Machine shop turnings	26.00-27.00

Short shovel turnings	31.00-32.00
Cast iron borings ...	31.00-32.00
Low phos. ....	48.00-49.00
Electric furnace bundles	48.00-49.00

Railroad Scrap	
No. 1 R.R. heavy melt.	48.00-49.00

## PHILADELPHIA

(Delivered consumer plant)

No. 1 heavy melting...	44.00-45.50
No. 2 heavy melting...	39.00-39.50
No. 1 bundles .....	44.00-45.50
No. 2 bundles .....	34.00-34.50
No. 1 busheling .....	44.00-45.50
Electric furnace bundles	44.50-45.50

Machine shop turnings	28.00
Mixed borings, turnings	32.00

Short shovel turnings...	34.00
Structural & Plate ...	46.00-47.00

Heavy turnings .....	42.00-43.00
Couplers, springs, wheels	50.00-51.00

## Cast Iron Grades

No. 1 cupola .....	38.00-39.00
Charging box cast ...	40.00
Heavy breakable cast...	43.00
Unstripped motor blocks	32.00
Drop broken machinery	47.00-48.00

## NEW YORK

(Brokers' Buying Prices)

No. 1 heavy melting...	37.00-37.50
No. 2 heavy melting...	31.00-32.00
No. 2 bundles .....	28.50-29.00
Machine shop turnings	20.00
Mixed borings, short	22.00-23.00

turnings	22.00-23.00
Low phos. (structural & plate)	39.00-40.00

Shovel turnings .....	23.00-24.00
Cast Iron Grades	

No. 1 cupola .....	32.00-34.00
Unstripped motor blocks	25.00-26.00

## Cast Iron Grades

No. 1 cupola .....	32.00-34.00
Charging box cast ...	30.00-31.00
Heavy breakable cast...	30.00-31.00
Unstripped motor blocks	30.00-35.00
No. 1 wheels .....	46.00-47.00

Cast Iron Grades	
No. 1 R.R. heavy melt.	35.00-36.00

Rails, 2-ft. and under	45.00-46.00
Rails, 18-in. and under	45.50-46.50

Rails, random lengths	49.00-50.00
Rails specialties .....	51.50-52.50

## Cast Iron Grades

No. 1 cupola .....	43.00
Charging box cast ...	34.00-35.00
Stove plate .....	34.00-35.00
Heavy breakable cast...	29.00-30.00
Unstripped motor blocks	30.00

Brake shoes .....	41.00
Machine shop turnings	18.00-19.00

Mixed borings, turnings	25.00*
Short shovel turnings	27.00*

Cast iron borings ...	25.00*
Low phos.	44.00

## Cast Iron Grades

No. 1 R.R. heavy melt.	46.00
Malleable .....	47.00
Rails, 18-in. and under	55.00
Rails, random lengths..	48.00

Cast Iron Grades	
No. 1 R.R. heavy melt.	46.00-47.00

Malleable .....	47.00
Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

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Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

Rails, random lengths..	48.00
Rails, 18-in. and under	55.00

For power economy in press operation: A double-pressure pump, automatically lubricated, with totally-enclosed mechanism.



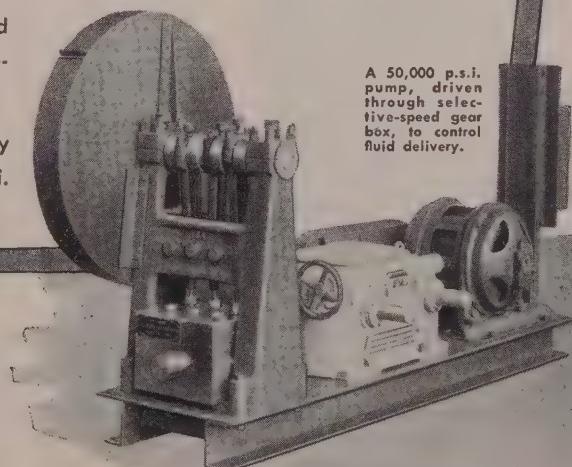
## LOGEMANN HYDRAULIC PRESSURE PUMPS

**Absolute Reliability... Maximum Delivery...  
Low Maintenance Cost...and Smooth Operation**

Logemann Brothers offer a complete line of specially-designed High Pressure Pumps in a wide range of sizes featuring both single and double pressure types. Both vertical and horizontal styles are proving highly successful in press and accumulator operations and for hydrostatic test purposes.

Pressures range from approximately 2,000 p.s.i. to in excess of 50,000 p.s.i.

When making inquiries will you please include your pressure and gallonage requirements and indicate the type of application.



A 50,000 p.s.i.  
pump, driven  
through selec-  
tive-speed gear  
box, to control  
fluid delivery.

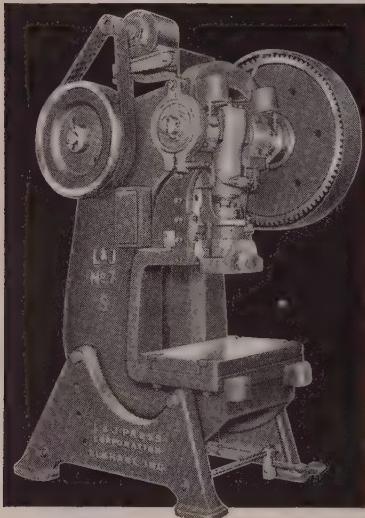
**LOGEMANN Also Specializes in**  
**WASTE PAPER BALERS**  
**for Industrial Applications... and in**  
**METAL BALING PRESSES**  
**for making compact, high density bales.**

# LOGEMANN BROTHERS CO.

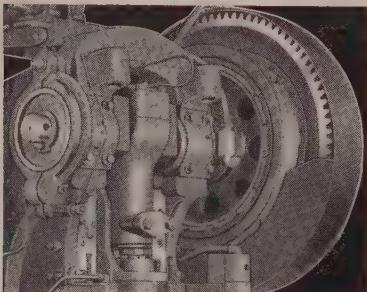
3126 W. BURLEIGH STREET • MILWAUKEE 10, WISCONSIN

# L & J PRESSES

for Low-Cost Output



The exceptional rigidity and accuracy built into L & J No. 7 Presses is proven by their productivity. Close tolerance work can be consistently produced, longer die life results from proper alignment and minimum deflection. Reports of users show down time and maintenance surprisingly low. Find out now how these presses can improve the quality and volume of your press work at reduced costs.



## L & J FAWICK AIR CLUTCH

This clutch, when used with a variable speed drive, provides maximum speed for each operation. Also, more production and greater safety. L & J Air-Release Spring-Set Brake is positive, fast, safe—sets automatically if air pressure fails.

**Write for Literature**



1628 STERLING AVENUE  
ELKHART, INDIANA

(Concluded from Page 149)

150 tons, classified project, Hanford Works; bids in.  
125 tons, three rolled beam bridges, Windsor, Conn.; bids Aug. 3, Hartford, Conn.  
100 tons, expansion city steam power plant; Bethlehem Pacific Coast Steel Corp., Seattle, low, \$24,244, to Tacoma, Wash.  
Unstated, steel frame wing hangar, heating plant and water system, Mountain Home Air Base, Idaho; Detweiler & Detweiler Inc., Twin Falls, Idaho, low, \$1,299,040, to U. S. Engineer, Walla Walla, Wash.  
Unstated, hangars, Mountain Home Air Base, Idaho; general contract to Campbell Construction & Equipment Co., low, \$1,295,000, bids June 4.  
Unstated, hangar, Spokane, Wash.; general award by U. S. Engineer to J. H. Wise & Son, Boise, Idaho, low, \$803,946.

## REINFORCING BARS . . .

### REINFORCING BARS PLACED

2000 tons, Navy floating drydock, to Steel Fabricators, California; General Construction Co., Seattle, general contractor.  
1300 tons, highway mesh, Taconic State Parkway section, Columbia-Dutchess counties, New York, to American Steel & Wire Division, U. S. Steel Corp., New York; Arute Bros., Inc., New Britain, Conn., general contractor.  
800 tons, grain elevator for Port of Vancouver, Wash., to Soule Steel Co., Portland, Oreg.; Henry George & Sons, Spokane, Wash., general contractors.  
500 tons, estimated, classroom-administration building, University of Georgia, Atlanta, Ga., to Southern General Fireproof Co., Atlanta; Mion Construction Co., Atlanta, general contractor.

450 tons, addition to Washington state hospital, Stellacoom, to James D. English Steel Co., Tacoma, Wash.; Dolph Jones, Tacoma, general contractor.

335 tons, Uptown junior high school, New Orleans, La., to Orleans Material & Equipment Co., New Orleans; R. P. Farnsworth Co., New Orleans, general contractor.

215 tons, elementary school, Malden, Mass., to Northern Steel Co., Boston; James S. Keilinier, Quincy, Mass., general contractor; Quincy Ornamental Iron Works, South Boston, 85 tons, structural steel.

210 tons, addition, St. Anne's hospital, Fall River, Mass., to Plantations Steel Co., Providence, R. I.; E. Turgeon Construction Co., Providence, general contractor; structural steel to John E. Cox Co., Fall River.

200 tons, hangar and facilities, Logan International Airport, East Boston, Mass., to Concrete Steel Co., Boston; Farina Bros., Newton, Mass., general contractor.

100 tons or more, addition, Rhode Island hospital, Providence, R. I., to Plantations Steel Co., Providence; Gilbane Building Co., Providence, general contractor.

100 tons or more, maintenance hangars, Pensacola, Fla., to Joseph H. Fox Co., Birmingham; Farnsworth & Chambers, Houston, Tex., general contractors.

100 tons, store building, F. W. Woolworth Co., Richmond, Va., to Virginia Steel Co., Richmond; Wise Contracting Co., Richmond, general contractor.

100 tons, climatic laboratory, Mt. Washington, N. H., to Bancroft & Martin Rolling Mills Co., South Portland, Me.; Henry E. Wile Co., Newton, Mass., general contractor.

Unstated, Army project, Kenai, Alaska; general contractors J. H. Pomeroy & Co., using steel stocks on hand, balance to be purchased from Joseph T. Ryerson & Son, Inc., Seattle.

### REINFORCING BARS PENDING

175 tons, Washington state highway projects; general contracts awarded.

Unstated, 10 aircraft nose docks, Fairbanks, Alaska; general contract to Campbell Construction Co., San Francisco, low, \$2,989,634.

Unstated, experimental laboratory, Hanford Works; bids to Atomic Energy Commission, Richland, Wash., Aug. 5.

## PLATES . . .

### PLATES PLACED

100 tons plus, fuel and water tanks, Delta

project, Alaska, to Hydraulic Supply Mfg. Co.

## PIPE . . .

### STEEL PIPE PENDING

Unstated, 1400 feet of 12 and 18-inch pipe, water system expansion; bids to Ephrata, Wash., July 31.

## RAILS, CARS . . .

### RAILROAD CARS PLACED

Seaboard Airline, 700 freight cars, with 400 covered hopper cars going to the Huntington, W. Va., shops of the American Car & Foundry Co., New York, and 300 woodrack cars to the Johnstown, Pa., shops of the Bethlehem Steel Co., Bethlehem, Pa.

CIMCO

MACHINE TOOLS  
AT BARGAIN  
PRICES

Niles 12' x 4" Initial Type Bending Roll.

Acme 5R Universal Ram Type Turret Lathe.

Niles 36-44 Vertical Boring Mill.

King 42" Vertical Boring Mill, 2 heads.

King 52" Vertical Boring Mill, one plain and one swivel head on cross rail, DC motor driven.

Niles 42"-50" Driving Box Borer, Burnisher and Facer, late type.

Hall Planetary Style D Miller.

Gould & Eberhardt 96 H Hobber.

Heald #50 Internal Grinder.

Norton 10 x 24 Surface Grinder.

Sellers 6T Tool Grinder, motor driven.

Norton 12 x 48 Hydraulic Universal Cylindrical Grinder.

Brown & Sharpe #12 Plain Grinder, reversing mechanism.

Heald 72A3 Sizematic Hydraulic Grinder.

Heald #70A Internal Grinder.

Heald #78 Centerless Internal & Cylindrical Grinder, late type, complete.

Heald 42 Borematic.

Jones & Lamson 8 x 31 Thread Grinder.

Heald 72-A3 Plain Internal Grinder.

Lodge & Shipley 16" x 8" single pulley drive, 12 spindle speeds.

American 16" x 8" 3 SC'D, 56" center distance, 1 1/4" hole in spindle.

Gould & Eberhardt 16" Back Geared Shaper.

Gould & Eberhardt 24" Back Geared Shaper.

Gould & Eberhardt 28" Shaper, gear box.

Smith & Mills 32" Shaper, gear box.

Fellows 725 Gear Shaper with Spur Guide.

Fellows 612 Spur Gear Shaper.

Brown & Sharpe 3-26 Gear Cutter.

Oliver Template Tool Bit Grinder.

Lodge & Shipley 16" x 126" centers G.H. Lathe, Timken bearing, complete with taper attachment, late type.

Niles 48" x 48" x 16" Double Housing Planer, 4 heads, box table, DC reversible drive.

Landis 26" x 168" Plain Cylindrical Grinder.

American 30" x 14" G.H. Lathe, 12 speed.

Bliss #58 Drawing Press, 5" stroke.

Cincinnati #2 Centerless Grinder.

American 4 1/1" column Triple Purpose radial drill, motor driven thru Turner gear box on arm.

Bardone & Oliver #2 Geared Electric Head Turret Lathe, late type.

Gisholt 16" Saddle Type Turret Lathe, with bar feed, late type.

Milwaukee 2HL Plain Miller, late type.

LeBlond 25/50 x 6/10 Sliding Bed Gap Lathe, Timken bearing.

Brown & Sharpe 3A Univ. Miller.

VISIT US AT OUR NEW LOCATION

INCINNATI MACHINERY  
COMPANY, INC.

"GUARANTEED MACHINERY"

3905 KELLOGG AVE.  
CINCINNATI 26, OHIO

# RAILROAD EQUIPMENT—FOR SALE

USED

AS IS

RECONDITIONED

## STANDARD GAUGE FREIGHT CARS

**Box, Steel Sheathed, 40-Ton Capacity**

**Box, Double Sheathed, 50-Ton Capacity**

**Box, Single Sheathed, 50-Ton Capacity**

**Flat, 50-Ton, Steel Underframe, 40'6" Long**

**Hoppers, All Steel, 70-ton, Triple Hopper Cross Dump**

## EXTRA LONG FLAT CARS

40 & 50-Ton Capacity, Length 70' and 74'

70-Ton Capacity, Length 60'0", All-Steel, Fishbelly Underframes

## STANDARD GAUGE AIR DUMP CARS

**Side Dump, 20-Yd., 40-Ton, Lift Door**

**End Dump, 20-Yd., 50-Ton, Drop Door**

**Side Dump, 30-YD., 50-TON, DROP DOOR**

## STANDARD GAUGE DIESEL-ELECTRIC ROAD SWITCHING LOCOMOTIVE

300 H.P., 70-Ton, Type 0-4-4-0

### NEW AND RELAYING RAIL

## WE BUY FREIGHT CARS FOR DISMANTLING IRON & STEEL PRODUCTS, INC.

**Send us your inquiries**

### REPAIR PARTS

For

All Types of  
Freight Cars

**General Office**

13462 S. Brainard Ave.

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Phone: BAnyport 1-3456

**New York Office**

50-D. Church Street

New York 7, N. Y.

Phone: BEekman 3-8230

**Send us your offerings**

### STORAGE TANKS

6,000 Gallon

8,000 Gallon

10,000 Gallon

**"ANYTHING containing IRON or STEEL"**

## CLASSIFIED

### Help Wanted

EXPERIENCED SCRAP BUYER OR TRADER to travel Midwest territory. State experience, qualifications and references. Alter Company, 1701 Rockingham Road, Davenport, Iowa.

ACCOUNTANT, SCRAP BROKERAGE BACKGROUND preferred. Must be capable with proper background. Advise experience, qualifications and references. Alter Company, 1701 Rockingham Road, Davenport, Iowa.

EXPERIENCED SCRAP YARD SUPERINTENDENT. Must be thoroughly capable of supervising scrap processing, scrap baling and maintenance departments. Advise experience, qualifications and references by mail. Alter Company, 1701 Rockingham Road, Davenport, Iowa.

A MAN EXPERIENCED IN ELECTRICAL MAINTENANCE WORK, preferably one with modern electrification practice where utilized in blast furnace operations, such as, charging control and power generation. Write stating salary expected. Reply Box 781, STEEL, Penton Bldg., Cleveland 13, Ohio.

### Accounts Wanted

REPRESENTATION WANTED Small firm which has succeeded in establishing one company's products in the steel industry on a wide, permanent and profitable basis can now provide aggressive representation for one or two other lines. Reply Box 785, STEEL, Penton Bldg., Cleveland 13, Ohio.

### Positions Wanted

PLANT MANAGER 20 years' experience in Plant Management, Production Control, Manufacturing Development. Could invest. Age 45, married, family. Reply Box 783, STEEL, Penton Bldg., Cleveland 13, Ohio.

GENERAL MANAGER 14 years' warehouse experience, national distribution and export, age 39, broad background sales and metallurgy. Reply Box 782, STEEL, Penton Bldg., Cleveland 13, Ohio.

PLANT MANAGER with 25 years' experience in Costs, Production and Management functions. M.I.T. graduate. Write Box 758, STEEL, Penton Bldg., Cleveland 13, Ohio.

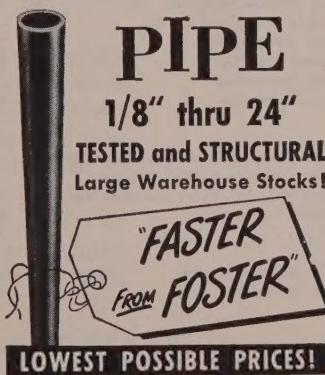
EXECUTIVE ASSISTANT ADMINISTRATION—SALES Age 36, College, Engineering, Record of Successful accomplishments. Seeks position with forging or manufacturing firm. Capable experience includes sales, administration, manufacturing, purchasing and production control. Welcome personal interview. Write Box 774, STEEL, Penton Bldg., Cleveland 13, Ohio.

### SALE OR LEASE

### COLD ROLLED STRIP STEEL MILL

Small established plant East Coast location doing good business with excellent expansion possibilities. Will consider merger or partner who can take complete charge.

Write Box 776, STEEL  
Penton Building Cleveland 13, Ohio



Pittsburgh 30, Pa. • Los Angeles 5, Cal.  
Houston 2, Tex. • Chicago 4, Ill. • New York 7, N.Y.

### Wanted

### WELDED TUBE MILL

Equal to Yoder M2 in capacity and size, but other makes will be acceptable. Not more than 2 years old. Mail offerings to Box 780, STEEL, Penton Building, Cleveland 13, Ohio.

**WANTED**  
Salesmen or sales agents, on commission arrangement, for Eastern Seaboard and Midwest—to sell quantity lots of small and medium size gray iron castings for well equipped highly mechanized production foundry with machining facilities in the Metropolitan New York area. Reply Box 775, STEEL, 60 East 42nd Street, New York 17, N.Y.

## AIR POLLUTION ENGINEER

Progressive West Coast engineering firm has immediate opening for a man experienced in Industrial Waste Systems. Air pollution experience required; water and stream contamination experience desirable. Forward detailed resume including salary requirements to:

Box 784, STEEL  
Penton Bldg., Cleveland 13, Ohio

Modern midwest steel works has openings for the following:

**STEEL MILL ENGINEER**

**INDUSTRIAL ENGINEER**

**METALLURGICAL OR**

**CHEMICAL ENGINEER**

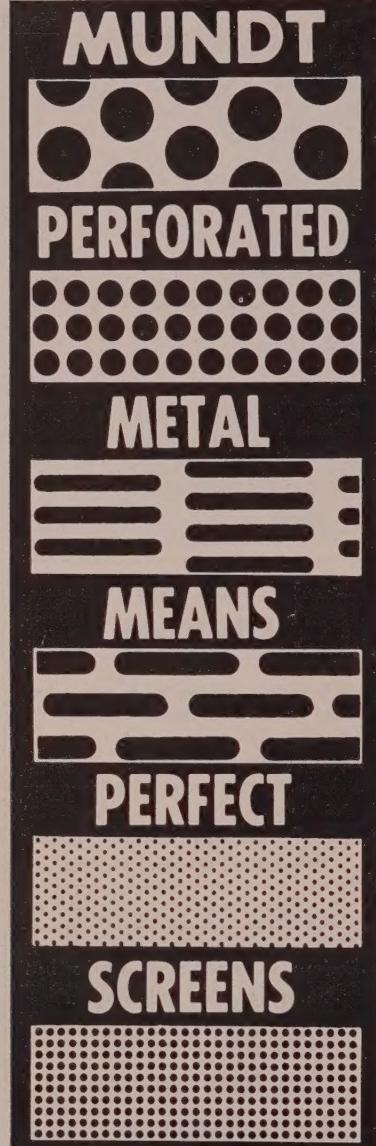
**MAINTENANCE ENGINEER**

These positions require extensive experience in steel. Applicants must be capable of assuming supervisory and management responsibilities. Salary is open and will be commensurate with ability.

Include a complete resume of qualifications with reply.

Reply to Box 775, STEEL,  
Penton Bldg., Cleveland 13, Ohio

## Advertising Index



Specially  
Fabricated for  
**ALL INDUSTRIES**  
BY  
**CHARLES MUNDT & SONS**

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JERSEY CITY 4, N. J.

PHONE DELAWARE 3-6200

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~ ~ ~

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# FARVAL SPRAY VALVES

## save 95% of lubricant and do 100% better job

COUNT the number of open gears on your machines. Multiply the amount of grease required for these gears by 95% and you'll have the savings in lubricant alone which Farval Spray Valves can bring.

Even more important than lubricant saving, the Farval Spray Valve spreads and maintains a uniform thin film of oil or grease evenly over all bearing areas—eliminates friction, increases efficiency, lowers power costs, reduces wear.

The Farval Spray Valve System is designed especially for lubricating open gearing and slide surfaces. Using an adaptation of the familiar Dualine Valve, this system sprays oil or grease from nozzles in just the right amount and at any desired interval.

No more wasteful hand paddling of lubricant on gear teeth with the hope it will spread itself uniformly. No more blobs of grease splotching up the floor—creating safety hazards. The Farval Spray Valve System has proved it can maintain a clean, even film of lubricant at all times while machines are in operation. No waste. No mess. No trouble.

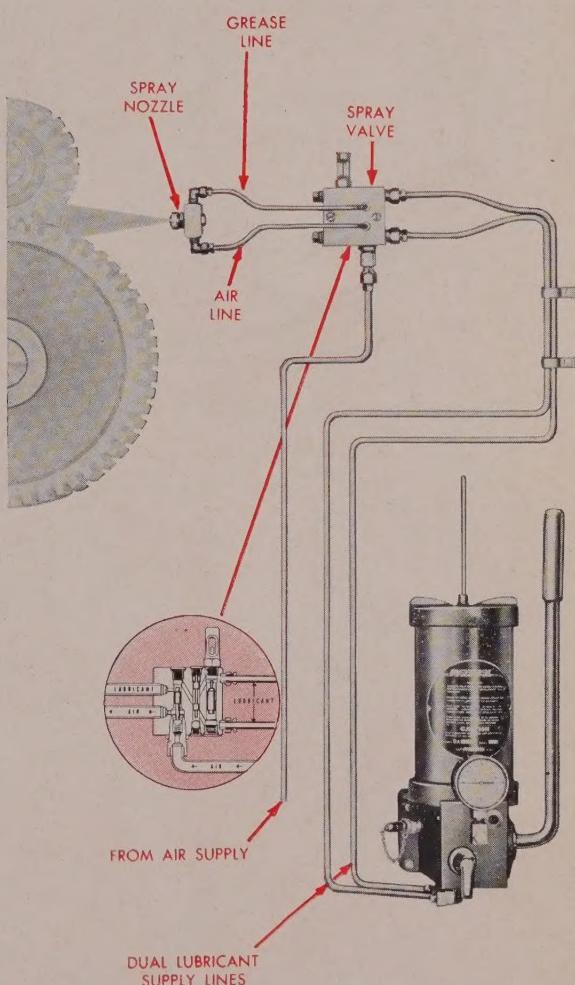
Farval Spray Valves can be inserted in a regular Farval Dualine System wherever compressed air is available. Or a complete Farval Spray Valve System may be installed, consisting only of Spray Valves served by a manual or automatic pumping unit. As indicated in the sketch at right, compressed air is directed through the Spray Valve, which meters air to the delivery nozzle at the same time that the lubricant is metered. Positive cut-off after delivery eliminates bleeding.

Why not insure that your open gearing and slide surfaces get the lubrication they need? Write for a copy of Farval Spray Valve Bulletin No. 60 today. The Farval Corporation, 3270 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.

FARVAL—Studies in  
Centralized Lubrication

No. 149



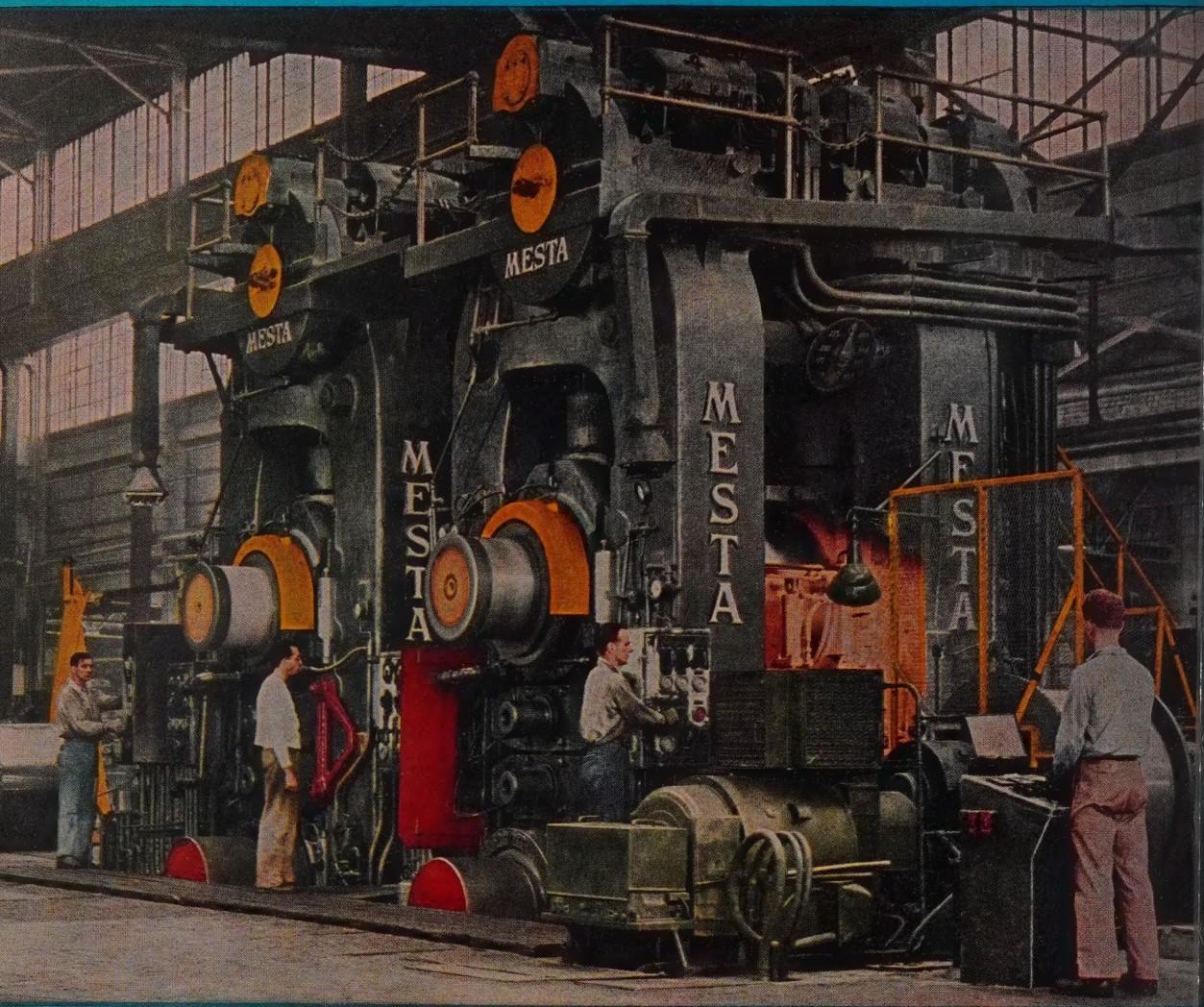
Drawing shows component parts of the Farval Spray Valve Centralized System of Lubrication—manual pumping station, dual lubricant lines, compressed air line, single Spray Valve and nozzle. Both automatic and manual systems installed three years ago are in operation today, prolonging gear life, saving labor and lubricant.

# FARVAL

CENTRALIZED  
SYSTEMS OF  
LUBRICATION

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